signal from said proximity sensor, the hearing aid may change program or turn the volume up or down.

WO 2009006889 Al describes a hearing aid with means for identifying the transducers in said hearing aid by measuring the impedance of said transducers.

EP 1276349 Bl describes a way for the hearing aid to test parts of the electronics or the full function of the hearing aid, to establish which parts need service.

SUMMARY OF THE INVENTION

Modern hearing aids are so light and comfortable to wear, that the user might not notice wearing them. Consequently, if a hearing aid falls off its position at or in the ear, the user might not notice losing one of the hearing aids. It is a feature of the invention to better monitor the placement of the hearing aids.

~~The~~Embodiments of the present invention ~~aims at providing~~provide a failure detection and notification system for detecting defective or missing parts of a hearing aid system and especially for informing the user of said hearing aid system of such errors.

~~In a first aspect of the invention, this is achieved by providing a hearing aid system including a first hearing aid and an external device, each device having link means for establishing a short-range wireless connection between the first hearing aid and the external device, where at least the first hearing aid has means to monitor whether the link with the extemai device is active and alert means to issue an alert based on a condition of the link or on a condition of the external device.~~According to a first aspect, there is provided a hearing aid system including a first hearing aid and an external device , each device having link means for establishing a short-range wireless link between the first hearing aid and the external device, where both the first hearing aid and the external device have means to monitor whether the link to the external device is active, characterised in that both the first hearing aid and the external device have means to issue an alert based on the detection of no traffic at the link within a defined period of time, following a period of time with monitored active traffic on the link to the external device.

With wireless inter-ear connection i.e. connection between the users left and right hearing aid, the wireless connection can be used to control whether the contralateral hearing aid is located at or in the opposite ear and if not, give an alarm to the user that he might have lost his left or right hearing aid, or it is not operating.

The wireless inter-ear connection is normally designed with a short range, e.g. no more than 0,5 m, sufficient for communication while the hearing aids are located at the respective ears. If a hearing aid is moved out of range, the connection is lost.

By periodically communicating with the contralateral hearing aid through the wireless link while constantly monitoring the traffic received, it can be verified whether an active connection to the opposite hearing aid exists. If the connection is lost for a longer period of time, it is likely that one of the following situations has occurred.

Either the battery of the opposite hearing aid is flat and there is no transmission from the contralateral hearing aid, or the opposite hearing aid is located too far away for wireless link to be able to keep an active wireless connection with the contralateral hearing aid. When the system has detected a loss of wireless connection to the second hearing aid over a predetermined period of time, for example 10 seconds, both hearing aids, if still powered, will alert the user to check the status of the opposite hearing aid. If one hearing aid is not powered, the other one will alert the user. The right hearing aid will tell the user to check the status of the left hearing aid and vice versa. As one of the hearing aids is either turned off because of a flat battery or is not located within reach of the wireless link and thereby not located at the correct position at or in the ear of the user, the user will only hear the message in one ear and hereby be alerted that he or she has lost the hearing aid at the opposite ear or the battery of the opposite hearing aid is flat.

In order to ensure that the user will not receive an alarm for no connection between the two hearing aids before the wireless link has been able to initially establish this connection after turning on the hearing aids, the system must preferably log an active connection for some period of time before initiating the monitoring of whether the wireless link is active.

~~The invention, in a second aspect, provides a method to issue an alarm in a first hearing aid, comprising establishing a link for short range wireless connection between the first hearing aid and an external device, monitoring whether the link to the external device is active and issuing an alarm based on a condition of the link or on a condition of the external device.~~According to a second aspect, there is provided a method for notifying a user of a defect or error in a hearing aid system, comprising establishing a link for short range wireless connection between a first hearing aid and an external device, characterised by comprising monitoring whether the link to the external device is active by starting a first counter once traffic has commenced; if the connection is not active, and the first counter has reached a preset value, initiating a second counter; if the connection is reestablished, resetting the second counter ; if the second counter reaches a predetermined count, issuing an alert in at least the first hearing aid.

~~Further aspects of the invention will appear from the subclaims.~~

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in greater detail based on preferred embodiments and the drawings, wherein

Fig. 1 shows a binaural hearing aid system connected with a wireless link, according to an embodiment of the invention;

Fig. 2 shows a block diagram of a detection unit according to a first embodiment of the invention; and

AMENDED CLAIMS:

1. A hearing aid system ~~(1, 11, 30)~~ including a first hearing aid ~~(1)~~ and an external device ~~(11, 30)~~, each device having link means ~~(5, 15)~~ for establishing a short-range wireless link ~~(20, 21)~~ between the first hearing aid ~~(1)~~ and the external device ~~(11, 30)~~, where both the first hearing aid ~~(1)~~ and the external device ~~(11, 30)~~ have means to monitor whether the link to the external device ~~(20, 21)~~ is active, C H A R A C T E R I S E D I N T H A T both the first hearing aid ~~(1)~~ and the external device ~~(11, 30)~~ have means to issue an alert ~~(4, 6, 12, 16)~~ based on the detection of no traffic at the link ~~(20, 21)~~ within a defined period of time, following a period of time with monitored active traffic on the link to the external device.

2. The system according to claim 1, wherein the means to monitor whether the link to the external device ~~(20, 21)~~ is active comprises, a first timer ~~(201)~~ to count the clock cycles elapsed since the onset of traffic, the first timer ~~(201)~~ having a first comparator ~~(202)~~ adapted to delay the start of active link detector ~~(100)~~ until a first predetermined time interval is reached, a watchdog timer adapted to count the clock cycles elapsed since the tripping by the first comparator ~~(202)~~, the watchdog timer having a second comparator ~~(113)~~ to determine if a second predetermined interval is reached, and alarm logic for issuing an alert on the conditions of reaching the predetermined time interval by the second comparator.

3. The system according to claim 1, wherein the external device has means for conducting a self-test and means for sending a message on the link to the first hearing aid about the result of the self-test.

4. The system according to claims 1 or 2, wherein the alert means ~~(4,12)~~ is adapted to issue an audible message or tone.

5. The system according to claims 1 or 2, wherein the alert means ~~(6,16)~~ comprises a visual indicator.

6. The system according to claims 1 to 5, wherein the external device is a second hearing aid ~~(1,11)~~.

7. The system according to claims 1 to 5, wherein the external device is a remote control ~~(30)~~.

8. A method for notifying a user of a defect or error in a hearing aid system, comprising establishing a link ~~(20, 21)~~ for short range wireless connection between a first hearing aid ~~(1,~~

~~11)~~ and an external device ~~(1, 11, 30)~~, C H A R A C T E R I S E D by comprising monitoring whether the link ~~(20, 21)~~ to the external device ~~(1, 11, 30)~~ is active by starting a first counter ~~(201)~~ once traffic has commenced;

if the connection is not active, and the first counter has reached a preset value, initiating a second counter ~~(111)~~;

if the connection is reestablished, resetting the second counter ~~(111)~~;

if the second counter ~~(111)~~ reaches a predetermined count, issuing an alert in at least the first hearing aid.

9. The method according to claim 8, wherein the external device ~~(1, 11, 30)~~ is a second hearing aid ~~(1, 11)~~.

10. The method according to claim 8, wherein the alert is a spoken message, a visual indicator, or a message sent to an external unit ~~(1, 11, 30)~~.

11. The method according to claim 8, wherein the external device is a remote control ~~(30)~~.