

[0016] FIG. 1 is an external view of a sensor attachment tool according to an embodiment of the present invention;

[0017] FIG. 2 is a developed view of the sensor attachment tool in FIG. 1;

[0018] FIG. 3 is a perspective view of the sensor attachment tool in FIG. 1 attached to a hand (on the palm side);

[0019] FIG. 4 is a perspective view of the sensor attachment tool in FIG. 1 attached to the hand (on the back side);

[0020] FIG. 5 is a perspective view of a marker attached to the hand on the palm side; and

[0021] FIG. 6 is a perspective view of a marker attached to the hand on the back side.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0022] A preferred embodiment of the present invention will now be described in detail in accordance with the accompanying drawings.

[0023] FIG. 1 is an external view of a sensor attachment tool (device) according to an embodiment of the present invention. The sensor attachment tool is made of extendable rubber-like material (material of wet suit or the like). A position/posture sensor and a speaker is fixed to the material by adhesive or sewing. Note that the extendable material does not necessarily have extensibility, but a non-extendable fabric having gathers, in which extendable material such as rubber thread is woven, may be used.

[0024] In FIG. 1, reference numeral 1 denotes a speaker; 2, a position/posture sensor; 3, a speaker cable; 4, a sensor cable; 5, a speaker attachment member as a ring-shaped portion to which the speaker 1 is attached; 6, a sensor attachment member as a ring-shaped portion to which the position/posture sensor 2 is attached; and 7, a connection member which connects these portions 5 and 6 with each other.

[0025] FIG. 2 is a developed view of the sensor attachment tool in FIG. 1. In FIG. 2, portions A and A' are connected with each other, and portions B and B' are connected with each other, thereby the shape as shown in FIG. 1 is formed. Note that FIG. 2 shows the developed form for convenience of explanation, but does not necessarily mean that the portions A and A' and the portions B and B' are attached with each other in a manufacturing process.

[0026] FIGS. 3 and 4 show the sensor attachment tool attached to a hand. FIG. 3 shows the tool viewed from the palm side. The speaker 1 is positioned on the wrist. FIG. 4 shows the tool viewed from the back side. The position/posture sensor 2 is positioned on the back.

[0027] In this manner, in the sensor attachment tool, the ring-shaped sensor attachment member 6 and the ring-shaped speaker attachment member 5 are connected with each other by the connection member 7. In this arrangement, the position/posture sensor can be reliably fixed on the hand in spite of small area of the attachment member 6 covering the hand.

[0028] Further, as the speaker 1 is positioned on the wrist and the position/posture sensor 1 is positioned on the hand, the distance between the speaker 1 and the position/posture

sensor 2 is increased. Further, as the speaker 1 is provided on the palm side and the position/posture sensor 2 is provided on the back side, the distance between the speaker 1 and the sensor 2 is further increased. In this manner, as the position/posture sensor 2 is away from the speaker 1, the ill effects by magnetic influence and metal parts of the speaker 1 on the position/posture sensor 2 can be avoided, and the measurement errors by the position/posture sensor 2 can be reduced.

[0029] An attachment procedure is simple. First, the player inserts his/her hand into the speaker attachment member 5 to the wrist, then pass the hand into the sensor attachment member 6 to the palm.

[0030] As shown in FIGS. 2 and 3, the speaker 1 and the position/posture sensor 2 are connected to the speaker cable 3 and the sensor cable 4, respectively, and these speaker cable 3 and the sensor cable 4 are sewed on appropriate positions of the sensor attachment tool main body, thus integrally mounted thereon. Especially, the sensor cable 4 is also fixed to the position of the speaker attachment member 5 such that the cable does not directly hang from the position/posture sensor 2. Accordingly, even if the sensor cable 4 sways or is pulled, the shock is absorbed in a portion fixed to the speaker attachment member 5, thereby the attachment portion of the position/posture sensor 2 is prevented from swaying.

[0031] Note that the ring size of the sensor attachment member 6 and that of the speaker attachment member 5 are different. The sensor attachment member 6 has a size about the perimeter of the palm such that the position/posture sensor 2 can be tightly fixed on the hand upon attachment of the attachment member 6 around the hand. The speaker attachment member 5 has the next larger ring size than the perimeter of the wrist such that the attachment member 5 can be slid freely on the wrist. Accordingly, when the wrist is bent and straightened, the speaker 5 slides on the wrist and does not pull the connection member 7 and the sensor attachment member 6. Thus, as the speaker attachment member 5 does not apply an excess force to the sensor fixing portion, it does not cause positional shift of the position/posture sensor 2, or does not disconnect the sensor cable 4 from the position/posture sensor 2.

[0032] Further, as the speaker 1 is positioned on the wrist, when the player looks at the hand and sees a CG-overlaid video image on the hand, the direction from which sound is emitted is close to the position/posture sensor 2 since the wrist is positioned between the player's viewpoint and the position of the CG (the position of the position/posture sensor 2).

[0033] Further, in a case where the magnetic emission device for the position/posture sensor 2 is positioned in front of the player, as the player's wrist is not positioned between the position/posture sensor 2 and the magnetic emission device, the metal parts of the speaker 1 have no ill effect on the position/posture sensor 2 by fixing the speaker 1 to the position of the wrist.

[0034] As the speaker 1 vibrates when emitting sound, it can provides vibration to the player's wrist by emitting sound. For example, in a case where a CG image of collision is displayed on the palm, if sound of collision is emitted from the speaker 1, the sound of emission auditorily comes