noise according to the performer activity, thus composing a collaboration work. A short video of this presentation can be seen in https://youtu.be/p1W4-g8w84A.

In addition to public performances, several tests were carried out. In one of these, two performers with bioelectric sensors installed on their bodies were involved. In these trials, cardiac activity (ECG) that the artist cannot control, but that depends on his emotional state and physical exertion were used. In addition to these signals, which were used as a rhythmic base, EMG sensors were installed on forearms (flexor muscles of the fingers), on the face (major zygomatic muscle) and on the leg (anterior tibial muscle). The envelopes of the EMG signals produced by the artists were transmitted as OSC messages to a computer that generates sounds using the PureData platform. A track recorded during one of these trials can be found at the bandcamp platform.(https://gibic.bandcamp.com/album/ed-1).

6. Conclusion

An important conclusion of the interdisciplinary work presented in this article is the experimental verification that it is possible the inclusion of biomedical signals in artistic performances, if wearable neuroprostheses are used. This equipment, usually intended for the field of assistive devices for handicapped persons or research purposes [7], usually act as alternative communication channels for the user, allowing him to control devices such as a computer, spellers, or different artifacts from his environment.

During the first stages of the joint work between performers, media artists and engineers, the feasibility of using biopotentials in performances was explored, using general-purpose biopotentials acquisition equipment available at the Laboratory. These devices that were not specifically designed for artistic performances, allowed to verify the feasibility of use of biopotential signals for this purpose but they also show that specifically designed equipment is required, in order to preserve performer's mobility on stage and to provide a friendly communication with software and hardware of media artists.

Based on these preliminar tests the WIMUMO was developed. This new wearable neuroprosthesis for the performance practice has four EMG sensors that capture the muscular activity of the performing artist, processes these signals in real-time and uses the OSC protocol to transmit the acquired and processed signals to the multimedia artist's domain. It also allows connecting another kind of sensors like temperature, humidity, and acceleration, among others.

The WIMUMO device complains to the Internet Of Things (IoT) paradigm, creating its own Wi-Fi network or connecting to an existing one. It can be configured through any web browser without installing custom software. The device is designed taking special care in that its placement, commissioning and set up do not require advanced technical knowledge.

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