Knotting the Memody // Encoding the Khipu_

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1 PROGRAM NOTES

The khipu is an information processing and transmission device used mainly by the Inca empire and previous Andean societies. The word comes from the kichwa1 language [khipu] which means knot. This mnemotechnic interface, is one of the first textile computers known, consisting of a central wool or cotton cord to which other strings are attached with knots of different shapes, colors, and sizes encrypting different kinds of values and information. The system was widely used until the Spanish colonization that banned their use and destroyed a large number of these devices [1].

In the performance, the interface is reused as a NIME using new materials in an electronic khipu, paying homage to this device with the convert into an instrument for the interaction and generation of live experimental sound.

Through the weaving of knots, the artist takes the position of a contemporary “khipukamayuq”(who was the person dedicated to knot the khipu) [3] seeking, from a decolonial perspective to encode with the touch, the gestures and the different kinds of knots, the interrupted legacy of this ancestral practice in a different experience of tangible live coding and computer music, as well as weave the past with the present of the indigenous and people resistance of the Andean territory with their sounds.

Fig. 1

(a) Ancient Andean Khipu

(b) Khipu as a NIME

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2 PROJECT DESCRIPTION

The western reading and vision of khipus, obsessed with establishing their numerical and mathematical logics in them, has ended up turning them into codes without message (as what Barthes considers photography is) [2] just in simple cultural objects without soul that have only for the observation, and study and not the functional tools full of meanings that were until their destruction.

Using new media, physical computing, and video and sound software, this project aims to bring back the khipu in the construction of new sound narratives, following the legacy of the Andean ancestral peoples by granting new messages on the use of that code system as a critical response of that western readings and logics imposed in an exercise of the symbolic restoration and vindication of the erased memory of the original peoples with the practical use of this ancestral device in the current artistic field.

Based on the original System the objective is the use of a contemporary electronic khipu as a live sound interaction instrument, highlighting the importance of cultural memory and historic reparation in a NIME.

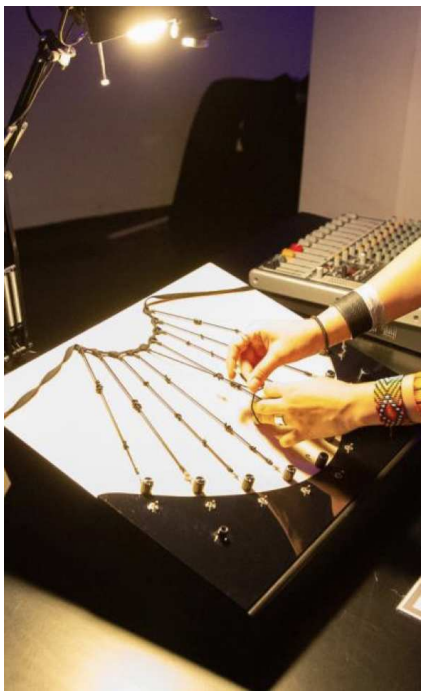

Fig. 3. Electronic Khipu

2.1 Technical Description

The performance instrument, the electronic khipu consists of a root cord and nine secondary strings made with conductive rubber strings (variable resistances that act as analogic sensors) arranged on a box in which has been settled potentiometers to modulate volume and buttons to activate or deactivate the signals of each string. It has a board circuit designed for the connection of the strings and components that allow their operation and a teensy microprocessor that sends the signals received with the rubbing of the strings to be knotted and also a conductive cord attached to one of the fingers of the performer and connected to the ground of the instrument whose rub sends different MIDI type signals to the computer.

The computer receives these signals as impulses and frequency changes in MIDI signals that control the effects in recorded tracks and produce other sounds using Ableton Live software.

At the same time, to get the live coding experience, a projection show all movements and gestures of knotting with the hands captured by a camera in realtime using vvvv software with dedicated images filters to enrich the experience, and for the audience to be able to see the performer's interaction with the live instrument.

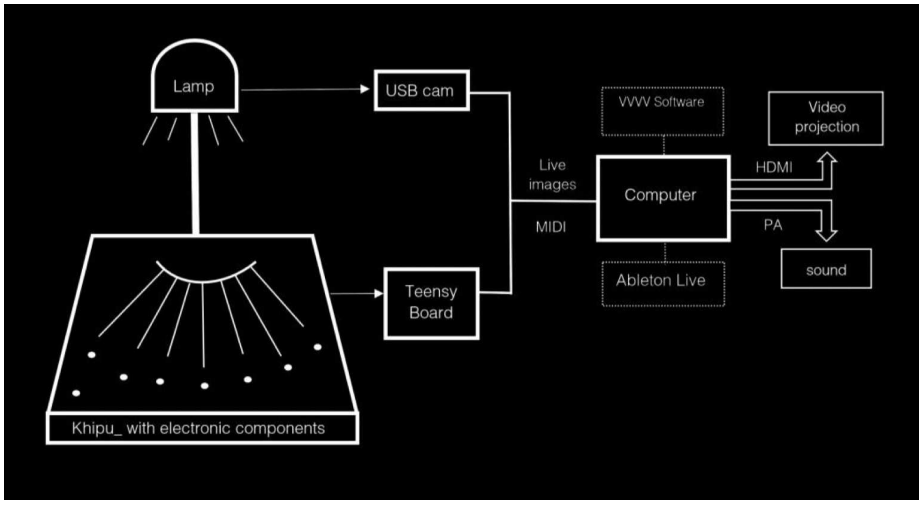

Fig. 4. Technic operating diagram

Fig. 5. Knotting the memory//Encoding the khipu_ performance setting up at the stage.

3 PERFORMANCE NOTES

The khipu has three-dimensional writing, is a tangible computer system that required the body where not only the sense of sight was involved. Touch and listening were fundamental parts. [4]. With these characteristics as a premise,

the electronic khipu is the instrument for the realization of experimental sound performances where the interaction is based on the weaving of knots in real-time, in which the artist becomes the figure of the “khipukamayuq”, that in a kind of tangible live coding, records and encrypts through the knots a live sound composition.

For NIME conference 2020 the electronic khipu will be knotted with different sounds inspired and dedicated to the indigenous resistance and memory of the people, who in the different territories of Latin America today, continue to go out to the streets to protest and demand the dignity that has been taken away from them by the corrupt governments that continue perpetuating the disasters of the colonization.

The experimental sound piece presented is filled with digital textures modified by the live manipulation of the cords and the knot-weaving that will encrypt a sound composition in the khipu influenced by the ancestral sounds of the Andes with a contemporary treatment.

4 MEDIA LINKS

- Video: https://vimeo.com/410816086
- Audio: https://drive.google.com/open?id=1EiGNNwwY7ETO4ADmtFwUxwTdP2xEm3wD

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