Loco Loop

FABIAN WERFEL, TU Berlin, Germany NICOLE LUJÁN, UdK Berlin, México

ACM Reference Format:

1 DESCRIPTION

Loco Loop is an installation for up to eight participants to record sounds into a loop, which they can create and manipulate together in real time.

It has the shape of an octagonal table with eight pairs of headphones in which the surroundings can be heard through two microphones embedded in the table top. There are three main controls in the center of the table: one button to record, one button to erase and a rotary knob to change the speed – and thus the pitch – of the loop. Two additional knobs on the sides provide master effects such as reverb, delay or distortion. Finally, there are small instruments on top of the table ready to be played and recorded to the overdub loop.



Fig. 1. The Loco Loop Table

Licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). Copyright remains with the author(s).

1.1 Hardware

Sounds from the environment are picked up by two small omnidirectional electret microphones. The sound processing is done on an Axoloti Core V1.2 embedded audio board to which knobs and buttons are connected. Both push buttons also give visual feedback: unpressed they light up and begin to flash rapidly when pressed. Finally, the Axoloti's stereo output is amplified for each pair of soundproof headphones. A 12 V lead battery is supplying power to all components except for the microphones, which are plug-in-powered (PiP) by a separate 6 V lead battery.



Fig. 2. Diagram of Loco Loop's Hardware

1.2 Software

The overdub looping is realized simply by a time variable delay with only very little attenuation in it's feedback path. Despite it's simplicity this design can lead to complex results through multiple overdubbing. Every movement of the tempo knob that controls the delay time irreversibly distorts the time structure and thus the pitch of the content of the "loop" since nothing is permanently stored but instead signals are merely delayed and fed back over and over again. So lastly it is notable that the the movements of that knob controlling the tempo are low pass filtered. This leads to rapid movements getting smoothed, resulting in a more elastic feel of time/pitch distortions. For sound examples please watch the demo videos in the media links section.



Fig. 3. Signal flow diagram of Loco Loop's Software

Loco Loop

1.3 Wetware (participants' experience and interaction)

Playing with this collaborative looper results in an attention shift towards auditory perception and a feeling of connection between participants through hearing the same thing and sharing a creative activity. The Loop provides an underlying pulse and the repetition causes everyday sounds or even words to lose their associated meanings which transforms them into musical material. In continuous repetition, every sound becomes music.

With every interaction, the sound is affected and changed for good. It is not possible to modify the loop and restore it to an earlier state in order to come back to how it sounded before. This makes it less like a classical looper and more like an infinite sound manipulation journey.

Ultimately, the minimalist interface allows all participants – both with and without musical education – to have a musical experience through sound manipulation.

2 SPACE REQUIREMENTS

The table top measures 65 cm^2 and the installation is 80 cm high. Additionally we would like to locate chairs, banks or any sitting objects around it. Alternatively Loco Loop can be paced on it's undercarriage which makes it suitable to be played standing with no need for chairs and a total height of 106 cm.

Including participants the installation occupies an area of about 3 m².

Any public space where people like to hang out is ideally suited. Since closed headphones are used, it doesn't bother the people around nor does it require absolute silence, although a calm atmosphere is beneficial since near loud music from outside could spill over into the loops.

It can be located either indoors or outdoors. We do not require any power connection, since it is powered by lead batteries that last for days. Also, an undercarriage with wheels and a handle have been specially constructed for convenient mobility of the table, which would even make it possible to take it to different locations each day of the conference.

3 MEDIA LINKS

- Video demo of Loco Loop's basic functionality: https://youtu.be/fK7VZcHIm88
- Video of people playing together https://youtu.be/y35LtCnNak8

4 FLOOR PLAN AND LOGISTICAL REQUIREMENT

Time to set up is no longer than an hour. We only have to organize the chairs to be comfortable for the people to be there. It does not require power connection nor internet.

5 FEASABILITY

The project has been installed and further developed for more than 6 years. It has since been presented in several festivals. The basic concept stayed the same but has sometimes taken different shapes.

2017 34th Chaos Communication Congress, Leipzig, Germany
2018 Fusion Festival, Lärz, Germany
2018 Garbicz Festival, Garbicz, Poland
2019 noches de autor, Mexico City, México
2019 36th Chaos Communication Congress, Leipzig, Germany

2022 Monument Festival, Oslo, Norway 2022 Sommer.Film.Akademie, Görlitz, Germany 2023 Freiland Festival, Broock, Germany 2023 Meta Solis Festival, Militz, Germany



Fig. 4. First version of the table design at Chaos Communication Congress, Leipzig, Germany in 2017



Fig. 5. The same collaborative looper fitted inside an old rim at Fusion Festival 2018, Lärz, Germany

Loco Loop



Fig. 6. Here built in collaboration with mexican wire artists "Mascaras de Alambre" at Noches de Autor 2019, Mexico City, México

6 EQUIPMENT REQUIREMENTS

We will bring the fully functioning table with its battery and the eight pairs of headphones. We will only need the assigned space (or different spaces for each day) as well as some chairs, sofas or banks, to prepare a comfortable atmosphere for people to play.

7 ETHICS STATEMENT

Loco Loop has been operational for extended periods of up to five days on various occasions, with no risks or dangers to participants observed or reported. It features an inbuilt compressor/limiter to control high volume peaks. Should the experience become overwhelming, participants may remove their headphones at any time. The power supply, equipped with safety fuses and operating on 12 volts, poses no risk of electrical shock. Furthermore, participant privacy is fully protected, as no data is collected and performances are not recorded.

ACKNOWLEDGMENTS

The authors would like to thank Raphi, Babbo, Phili for the very first experiments leading to this development and the Experimental Stage Project for initially making possible the construction of the table and taking it to various festivals.