

Telúrica

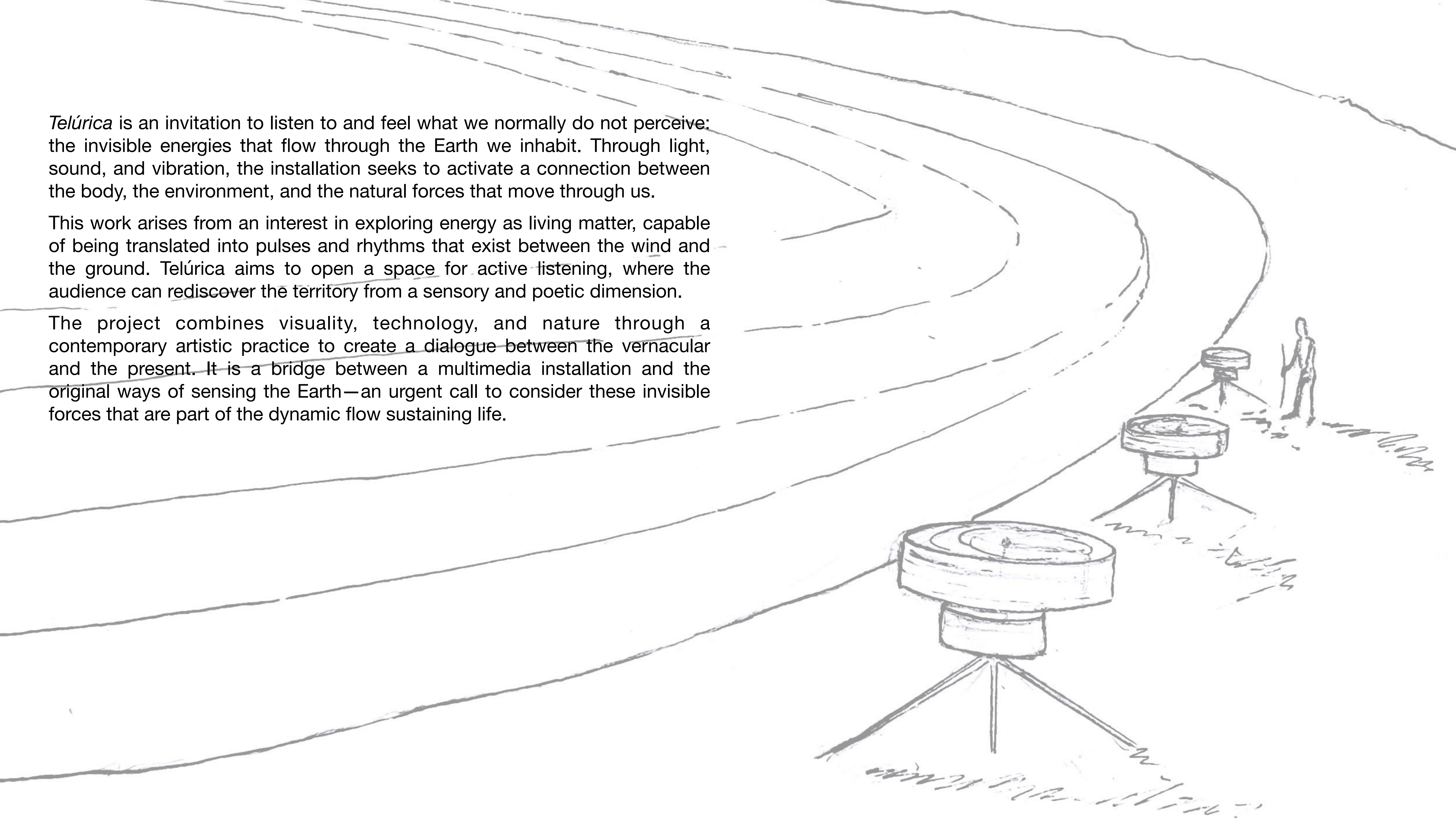
A multimedia installation that makes the invisible forces of nature visible, transforming into materiality the energies that emanate from its rivers, volcanoes, and winds.



Telúrica is an invitation to listen to and feel what we normally do not perceive: the invisible energies that flow through the Earth we inhabit. Through light, sound, and vibration, the installation seeks to activate a connection between the body, the environment, and the natural forces that move through us.

This work arises from an interest in exploring energy as living matter, capable of being translated into pulses and rhythms that exist between the wind and the ground. *Telúrica* aims to open a space for active listening, where the audience can rediscover the territory from a sensory and poetic dimension.

The project combines visibility, technology, and nature through a contemporary artistic practice to create a dialogue between the vernacular and the present. It is a bridge between a multimedia installation and the original ways of sensing the Earth—an urgent call to consider these invisible forces that are part of the dynamic flow sustaining life.



Telúrica investigates the ways in which the Earth's energy—such as telluric currents—manifests and can be experienced. Through sound, vibration, and sensory perception, the work translates invisible phenomena into perceptible experiences.

After years developing an artistic practice focused on matter as both archive and presence, this project marks a shift toward energy as an expressive medium. *Telúrica* invites active listening to the territory and its internal forces, exploring the relationship between body, landscape, and the dynamics that move through us.

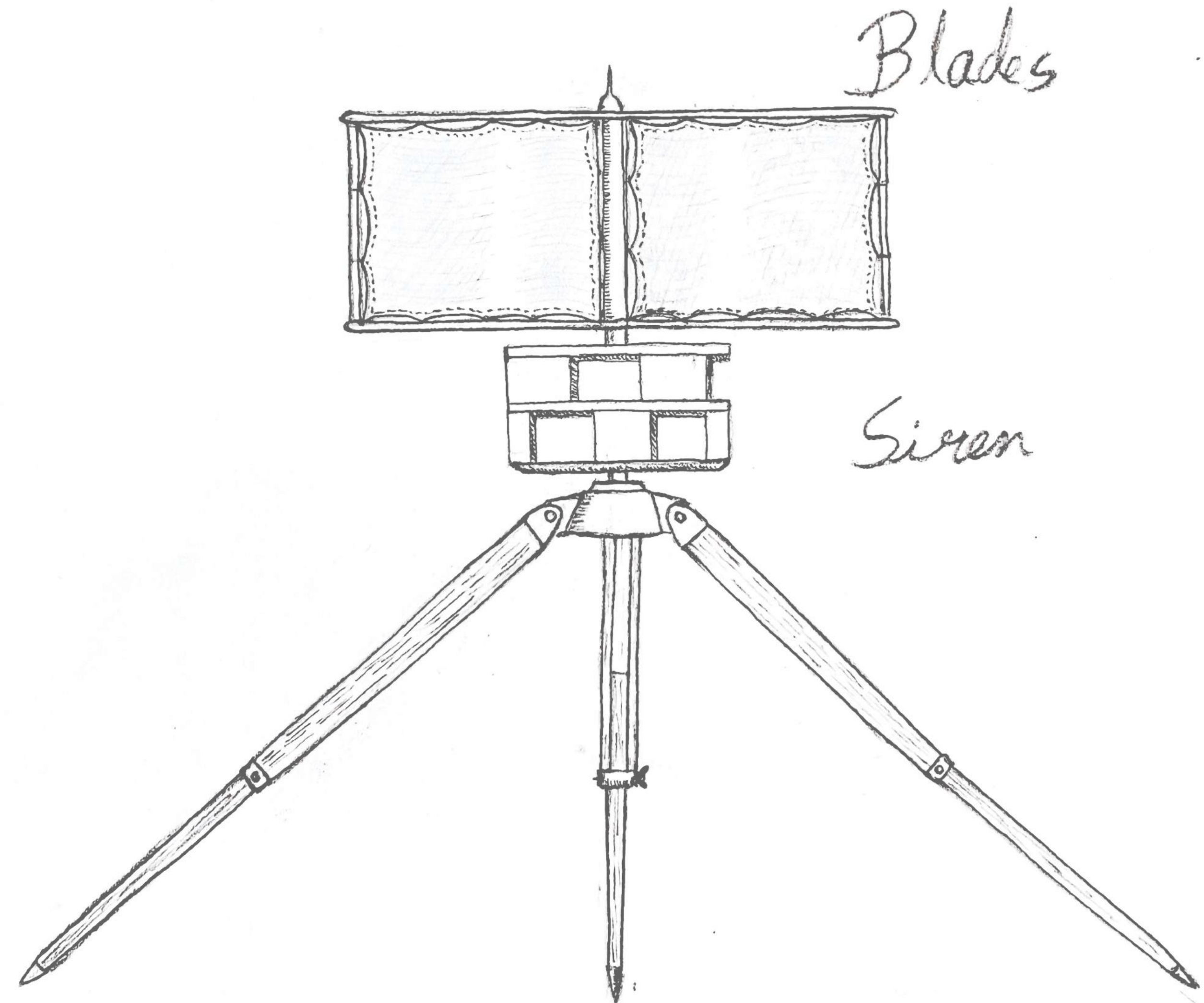
The term “telúrico” (or in English, “telluric”) refers to the forces emanating from the Earth. In this context, “*Telúrica*” evokes a connection with the Earth as origin and vital principle, implicitly referencing ancestral ways of perceiving these energies as life-driving forces beyond the visible surface.

Telúrica refers to natural currents and forces that travel through the Earth's crust and oceans, caused by variations in the Earth's magnetic field and influenced by solar activity. The term also encompasses phenomena such as seismic movements, crustal shifts, and massive air flows—dynamic manifestations emerging from the Earth’s internal layers.

Beyond its scientific definition, *Telúrica* points to a perceptive dimension that, in many cultures, was associated with sacred sites—temples, stone circles, mountains—and knowledge systems such as geomantic networks (ley lines), dowsing, or feng shui. While sometimes considered esoteric, these traditions share a common intuition: the Earth as a living body, generator of flows and meaning.

Telúrica is the fusion of two research lines I have been developing, brought together into a single work: the complexities of wind and oscillations. The first involves a series of windmills that produce sound compositions resembling human voices in low tones; the second stems from years of experience and study to make structures vibrate, ranging from natural spaces (wind oscillators such as mountains, bays, etc.) to cultural sites (the Museum of Contemporary Art in Santiago, the Ex-Prison Cultural Center in Valparaíso, and the Emilio Pujin Building in Valdivia).

The work consists of five windmills and six electrovibratory motors mounted in outdoor locations. The composition is controlled by a specially designed system to generate waves, beats, glissandi, and above all, the sensation of experiencing the message from the very depths of the Earth’s crust.



The installation is composed of three main components: sirens powered by windmills or mechanically, vibratory motors, and the forces of nature. Installed along the promenade of Prochelle Park, it will generate movement, lights, vibrations, overtones, and glissandi that can be felt on both sides of the Calle Calle River.

The installation represents the synthesis of two works I have been researching since 2023—**sirens and oscillators**—interacting with more than a decade of work exploring the relationship between new media and nature.

Dimensions and Spatial Arrangement

Sirens Dimensions

- 1.5 m diameter
- 1.6 m height

Motors Dimensions

- MVE 200/3E: 233 × 130 mm
- MVE 300/3E: 278 × 150 mm
- MVE 700/3E: 334 × 170 mm

Distance Between Elements

- 3 m

Total Installation Size

- 25 × 1.5 m

Estimated Installation Area

- Separation between pieces: 4 m × 12 m

Modular and Adaptable Setup

Linear distribution, site-specific, determined according to the location

Components:

5 custom-designed wind sirens

5 industrial vibratory motors (MVE)

- 2 MVE-0200/3-3000 rpm-2P-3F-220/240-380/415 V-50 Hz
 - Weight 7 kg
 - Centrifugal force: 187 kg
- 3 MVE-0700/3-3000 rpm-2P-3F-230/400 V-50 Hz
 - Weight 18 kg
 - Centrifugal force: 758 kg

Control system

- PCB with 32-bit dual-core Xtensa LX6 microcontroller
- Modbus RJ45 interface

Frequency drives

- 6 Optidrive ODE-3-120023-1F12
- 0.37 kW (0.5 HP)
- Output current 2.3 A

Internal lighting

Gear system (multipliers)

Environmental sensors

- Anemometer
- Blade rotation calculation
- Vibration
- Water monitoring system

Wind sirens



Diseño interior Sirenas de viento
Taller de lutería, Cahuil 2025

Since 2019, I have been experimenting with ways to materialize the wind using various instruments, including the Wind Oscillators (2016–2019), as well as more recent projects such as *Holobionte* (2023) and *Complexities of the Wind* (2025).

See voluntary documents, pages 6, 23, and 36.

Starting in 2023, I began studying the combination of wind-driven anti-aircraft sirens. After nearly a decade of research into the relationship between art and nature, with these sirens I aim to represent the invisibility of the air-climate hyperorganism through hypnotic sounds and textures that draw attention to the urgency of understanding these invisible forces—forces that, in the river regions, form part of our heritage.



*Complejidades del viento
Bahía de Wulaia, Cabo de Hornos 2025*

Sirens

From the Semitic Sir, “song,” and the Greek *Χίμαιρα* - *Khimaira*, “chimera.”

Sirens are part of an artistic research process using a sound device that is activated through its interaction with the wind. The result is a song that invites reflection on the complexities inhabiting ecosystems and their natural forces. A hypnotic chorus of nymphs is triggered by the encounter of oceanic air masses with the coastline. This is how a posthuman sound narrative emerges, originating from the sea, carried by air currents, surface waves, and the turbulences that interact with the sculpted architecture of the South Pacific.

In Greco-Roman tradition, the siren is a monstrous assemblage with the bust of a woman and the body of a bird, luring sailors with the sweetness of its song. In Sirens, the sound sculptures are a chimera composed of a windmill and a siren or air alarm body. An installation that produces an en/cantment, alerting us to the fragility of the invisible.

The installation consists of five wind instruments whose sound is directly related to the architecture of the surrounding space. The combination of instruments, driving forces, and spatial resonances leaves an acoustic imprint unique to the physiography in which it is situated—a symbiotic relationship between sound and space that underlies the banks of the Calle-Calle River.

Each instrument is tuned to the same tones, with its sound dependent on the intensity of the wind that drives it. The structures, spaced 3 meters apart, generate a five-tone chorus that shifts according to the microturbulences of the air mass. In this way, the voice of the wind expresses its heterogeneity, its agency, and the singularities and complexities of a hyperorganism that are not invisible to the eye.

The wind is the force that helps us uncover the hidden in a space. We could say that what we pursue here is an ecoacoustics: listening to, or making visible, through a non-human force, what the landscape reflects, what is amplified in the environment, and in everything willing to pay attention.





Design of a Siren and Operation

The wind siren is designed to emit sounds ranging from 50 to 100 Hz. In other words, it produces low tones that are completely distinct from a typical alarm. The design uses wind as a driver but can be replaced by a mechanically and programmatically driven system with centralized control to create compositions that emulate those produced by the wind.

Operating Principle:

An electric motor rotates a rotor at high speed (between 600 and 3,500 rpm). A multiplier, or electrically controlled gear system, is capable of increasing the rotational speed up to 5 times that produced by the wind or the motor.

Rotor:

A cylinder with longitudinal slots that rotates inside the fixed stator, which also has 5 aligned slots. As it turns, the rotor opens and closes the slots against those of the stator, cutting the airflow and generating pressure pulses. These pulses are perceived as a pure tone (e.g., 50–100 Hz) amplified by the casing and horn. A gate or speed control can vary the frequency to produce the characteristic rising and falling of the tone.

Interior Dimensions (example):

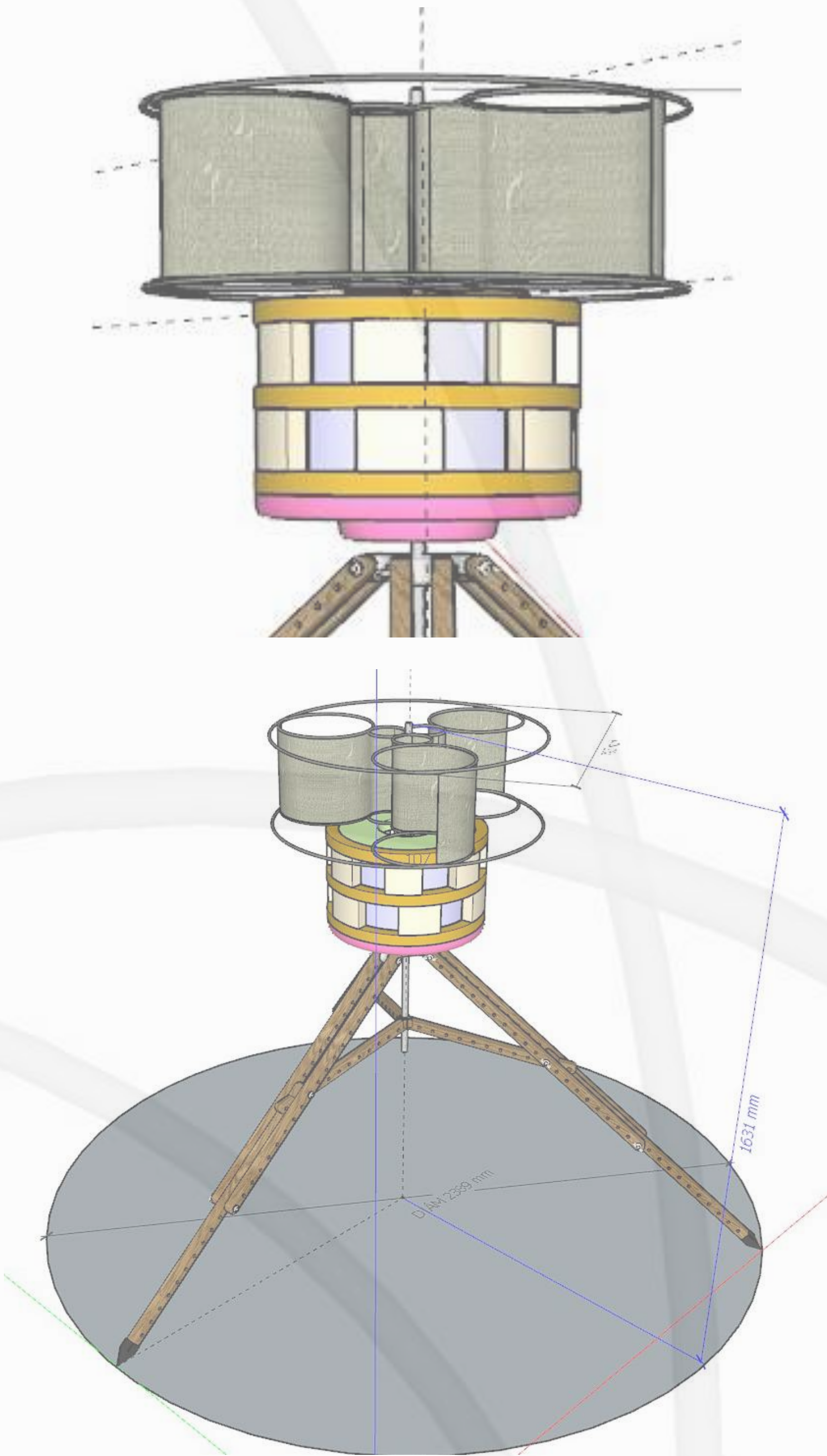
- Rotor diameter: 50 cm
- Rotor length: 45 cm
- Number of rotor slots: 5
- Number of stator slots: 5
- Distance between rotor and stator: 1–2 mm (tolerance space)
- Air chamber and horn: total horn length ≈ 60 cm with a bell opening of 35 cm in diameter

Materials:

- Rotor and stator: cast steel or aluminum
- Casing: anti-corrosion painted steel
- Horn: cast aluminum or sheet steel
- Blades: industrially folded tin sheets

Motor:

- Copper windings, steel casing
- Power and Range:
 - Motor power: 3–7 HP
 - Sound pressure level: 70–90 dB at 1 meter
 - Audible range: 0.5 km under optimal conditions



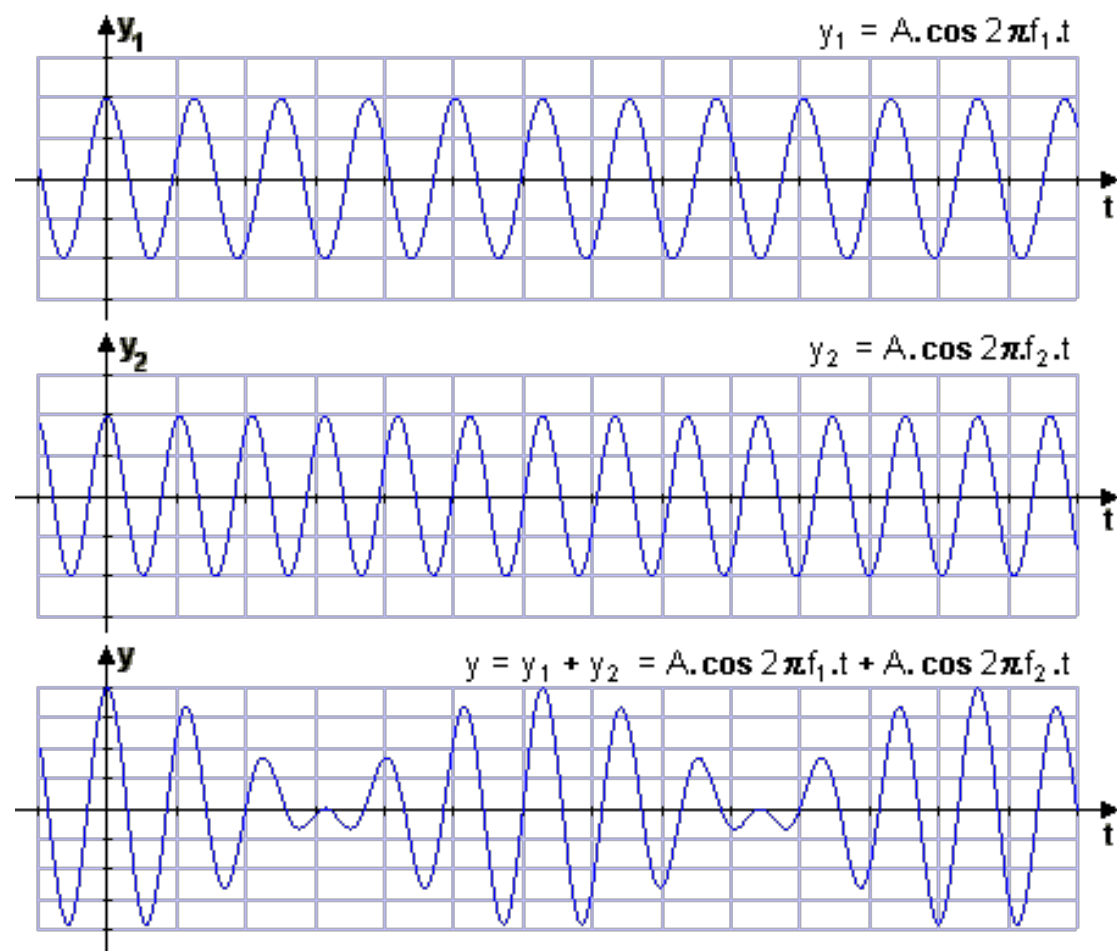


The hypnotic rotations of these structures are accompanied by sounds ranging from 50 to 100 hertz. To give an idea, this is the range of a husky voice, the wind in calm, the distant rumble of thunder, or the deep sound of an earthquake or volcanic eruption.

These tones shift due to the particularities of the wind, causing each of the five sirens to sound slightly different from the other four, generating glissandi and **bastimentos / beats (*)**. The latter are especially interesting, as they form air pressures and pulses unique to the interaction between the structures.



Explanatory [video](#) on the physical phenomenon of beating (headphones required)



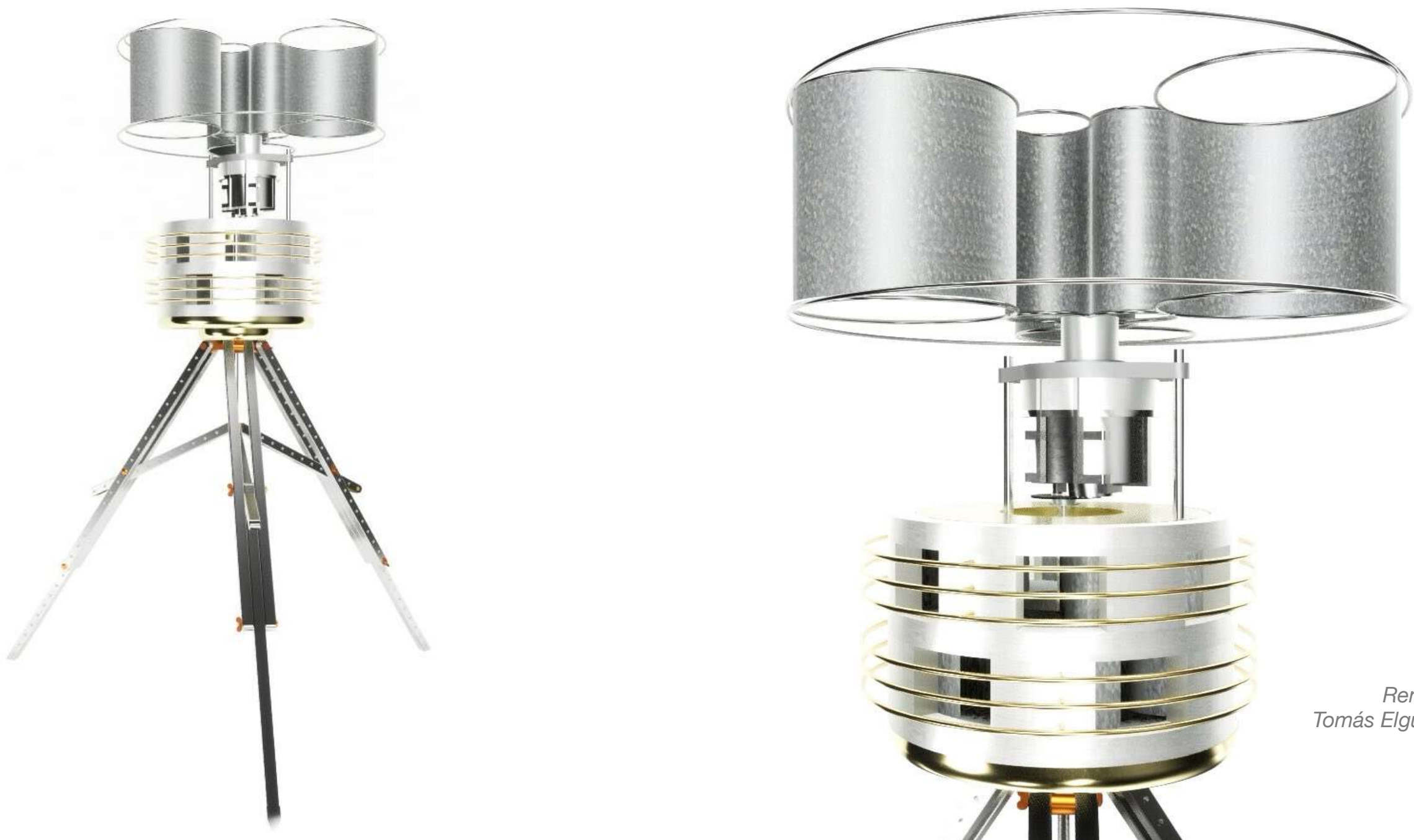
(*) [https://en.wikipedia.org/wiki/Beat_\(acoustics\)](https://en.wikipedia.org/wiki/Beat_(acoustics))

At this point, what is heard ceases to be the sirens themselves and becomes the sound of the air space between them, creating an experience unique to the place rather than the sound source. In this way, the work no longer resides in the objects or their sounds, but manifests in the space that separates them; to paraphrase Marshall McLuhan: “The medium is the message.”

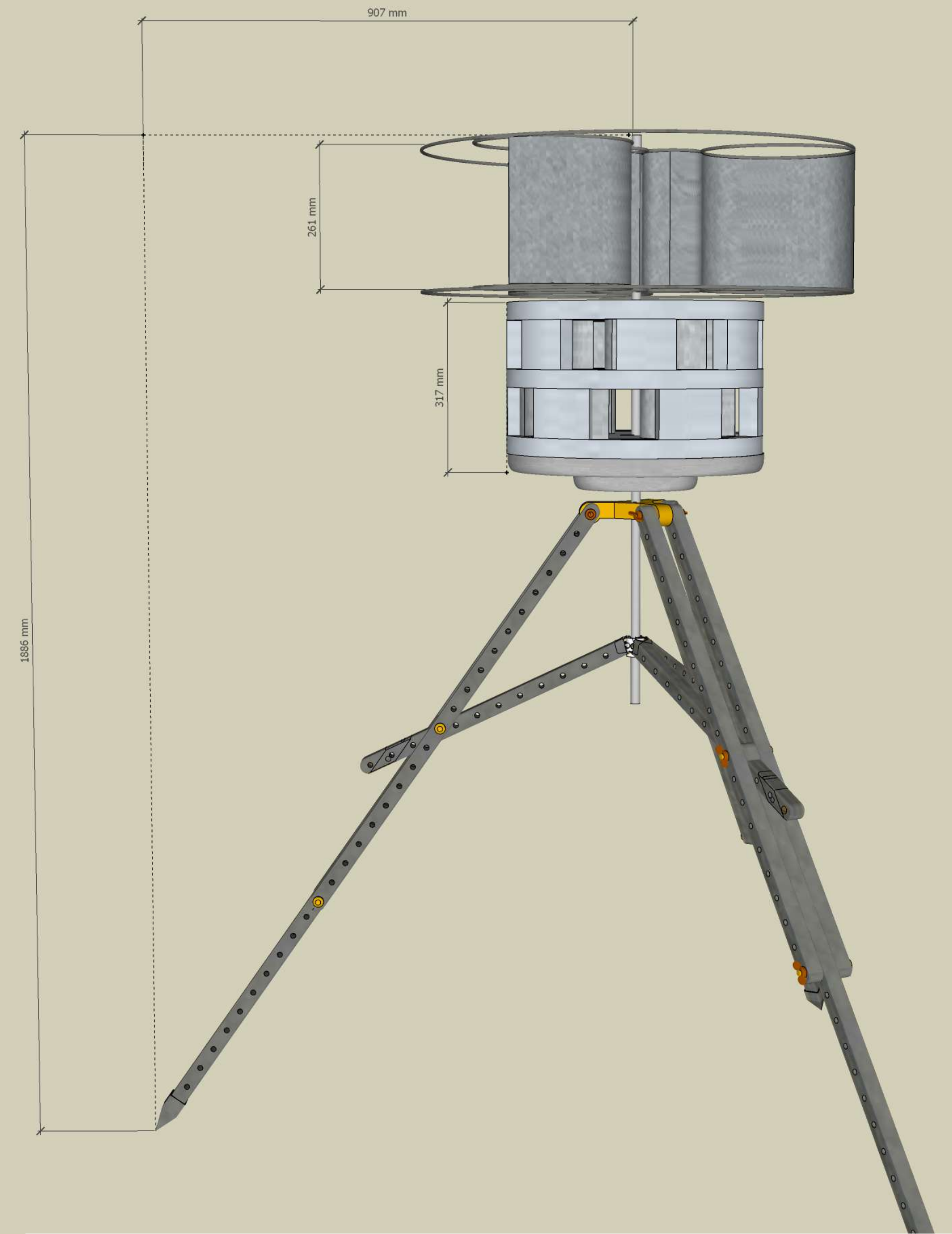
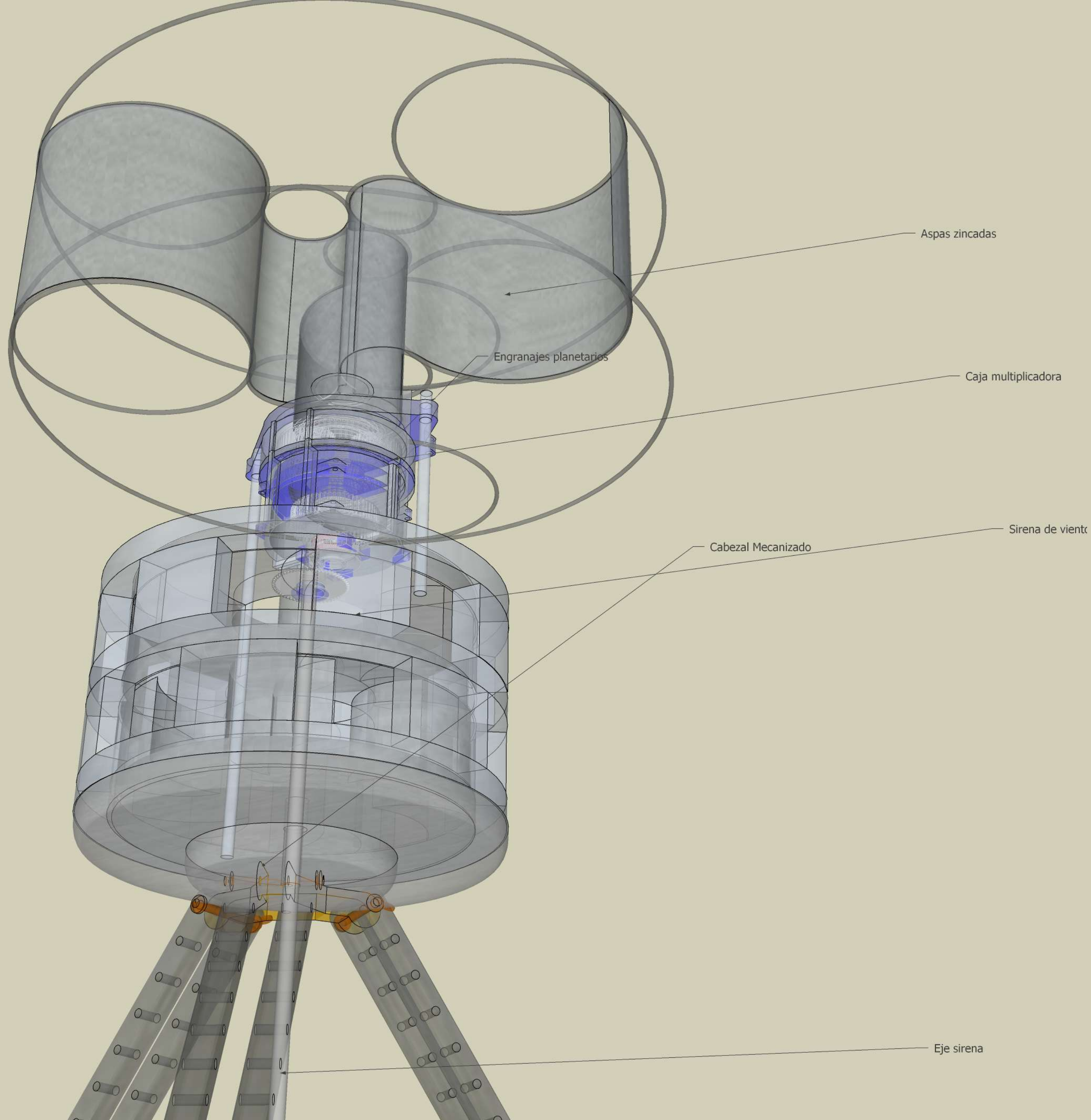
[Example video](#) on the operation of the sirens. **Important note:** the sound recorded in this video corresponds only to an example of a siren activated by metal blades. While the mechanism is illustrated, the recorded pitch differs from that intended in Telúrica. The installation includes a siren several times larger than the one in the video, which will allow the generation of much lower, huskier, deeper, and guttural sounds. Thus, the result will differ from a conventional alarm, conveying its intensity through sonic and vibratory depth.

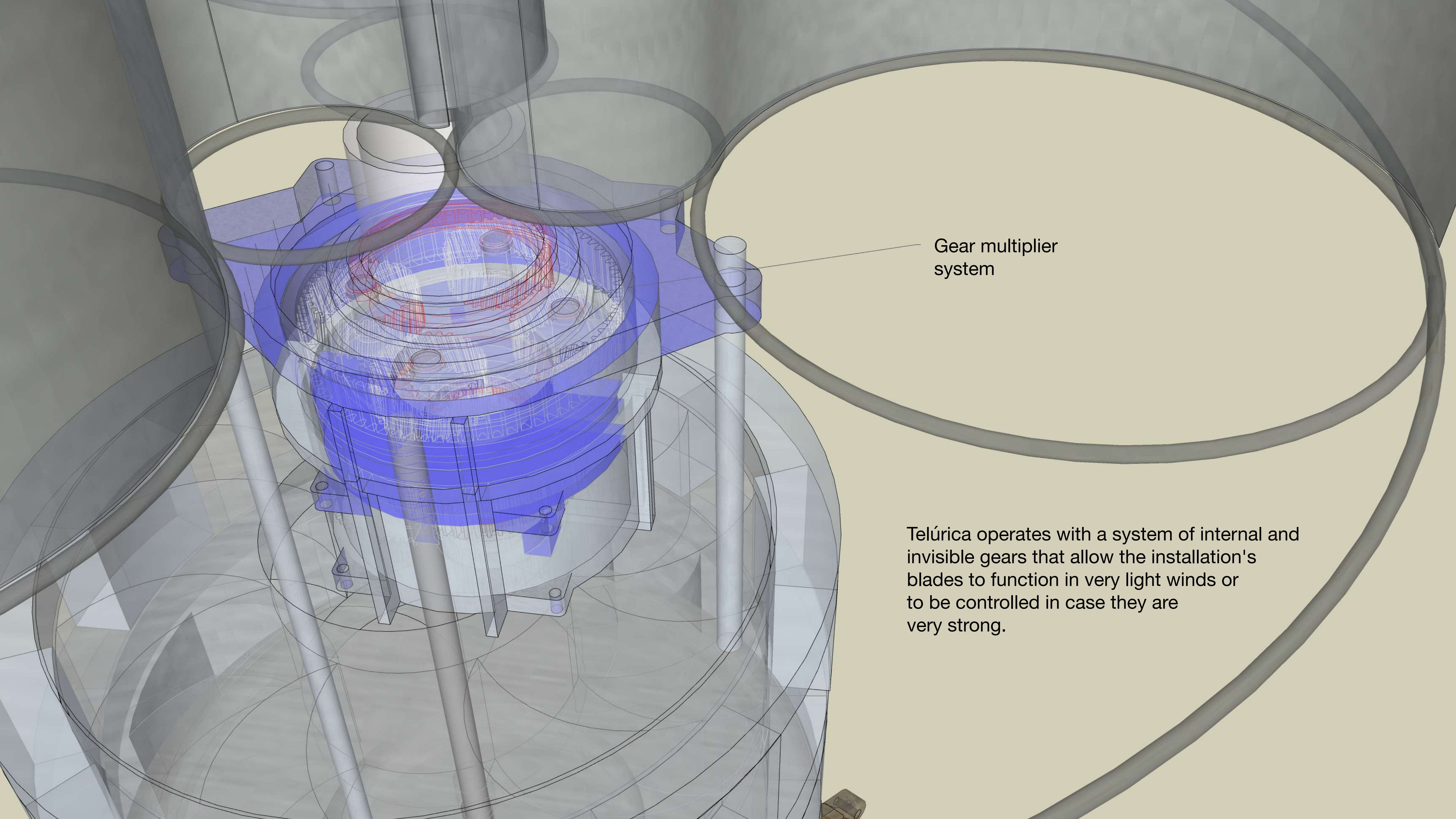
It is important to note that the purpose of this structure is not to alarm, but to generate a composition of forms and sounds in dialogue with the surrounding environment. The resulting sound will resemble a deep roar emerging from the earth’s depths rather than a shrill bell.

Although the device references the sonic aesthetic of sirens, its goal is to materialize the invisible: to make tangible forces that normally do not manifest explicitly, here translated into the movement of the blades and the pulse of its lights.



Render
Tomás Elgueta





Gear multiplier
system

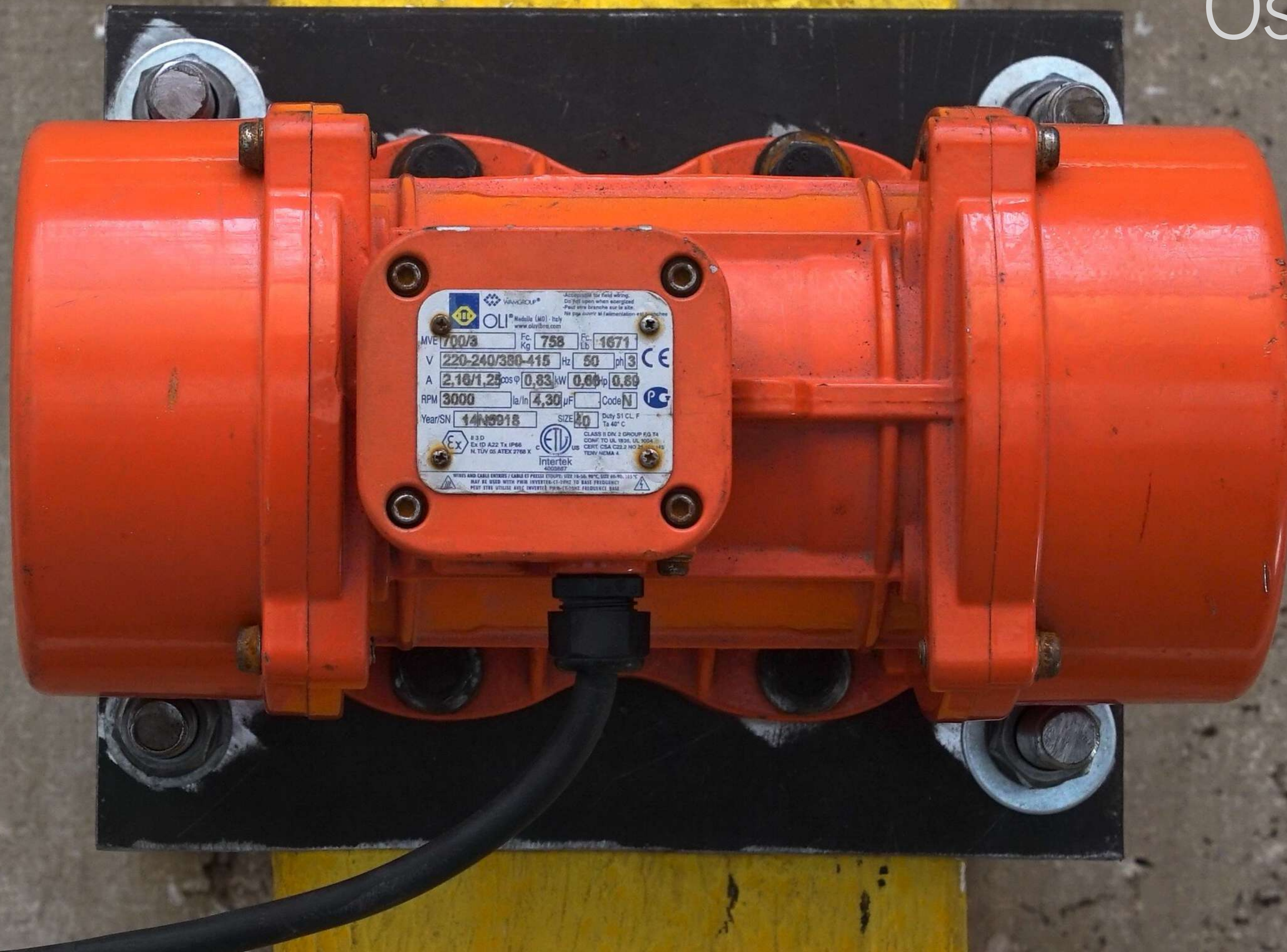
Telúrica operates with a system of internal and invisible gears that allow the installation's blades to function in very light winds or to be controlled in case they are very strong.

Operational render of the installation in night mode.
The light flashes synchronously with the rotation
of the wind sirens and is therefore
synchronized with the wind.



Oscillators

Vibrating motors



WANGROUP
OLI® Modella (MO) - Italy
www.oli.it

Accessibile für field wiring.
Do not open when energized.
- Pour être branché sur le site,
- voir page 40 pour la réglementation et les schémas

MVE	700/3	Fc	758	Fc	1671
V	220-240/380-415	Hz	50	ph	3
A	2.16/1.25	cos φ	0.83	kW	0.60
RPM	3000	la/in	4.30	μF	
Year/SN	14/15018	SIZE	40	Duty S1 CL F	

Ex 83D
Ex ID A22 Tx IP66
N.TUV GS ATEX 2768 X

Intertek
40000007

CLASS II DIV 2 GROUP E, G, TA
CONF TO UL 1834, UL 1908
CERT CSA C22.2 NO 349-14
TENV NEMA 4

WIRING AND CABLE ENTRIES / CABLES ET PRESSÉ (TYPICAL) USE 18-36 10°C USE 60-90 145 °C
MAY BE USED WITH PWM INVERTER-CT-IP66 TO BASE FREQUENCY
PEUT ÊTRE UTILISÉ AVEC INVERTEUR PWM-CT-IP66 FRÉQUENCE BASE

Since 2021, I have been experimenting with ways to materialize energies from nature within enclosed spaces, using industrial forces. My intention is, in a poetic way, to conceive of the territory as a great creative and shaping force, erasing the notion of fragility that is often attributed in the face of global climate change. Nature is not fragile; it is we who make it fragile.

Thus, over the past five years, I have created works in which vibrations traverse infrastructures such as museums, universities, and heritage buildings, generating intermediate spaces that sensitize the environment through energies that pass through bodies.

Oscilador, Museum of Contemporary Art (2023) ([video](#) / [map](#))

Oscilador, Tsonami Festival 2025, Centro Cultural Ex-Cárcel de Valparaíso (2025)

Ecotono, Academic Year Opening, Emilio Pujín Building, Faculty of Sciences, Valdivia (2025)

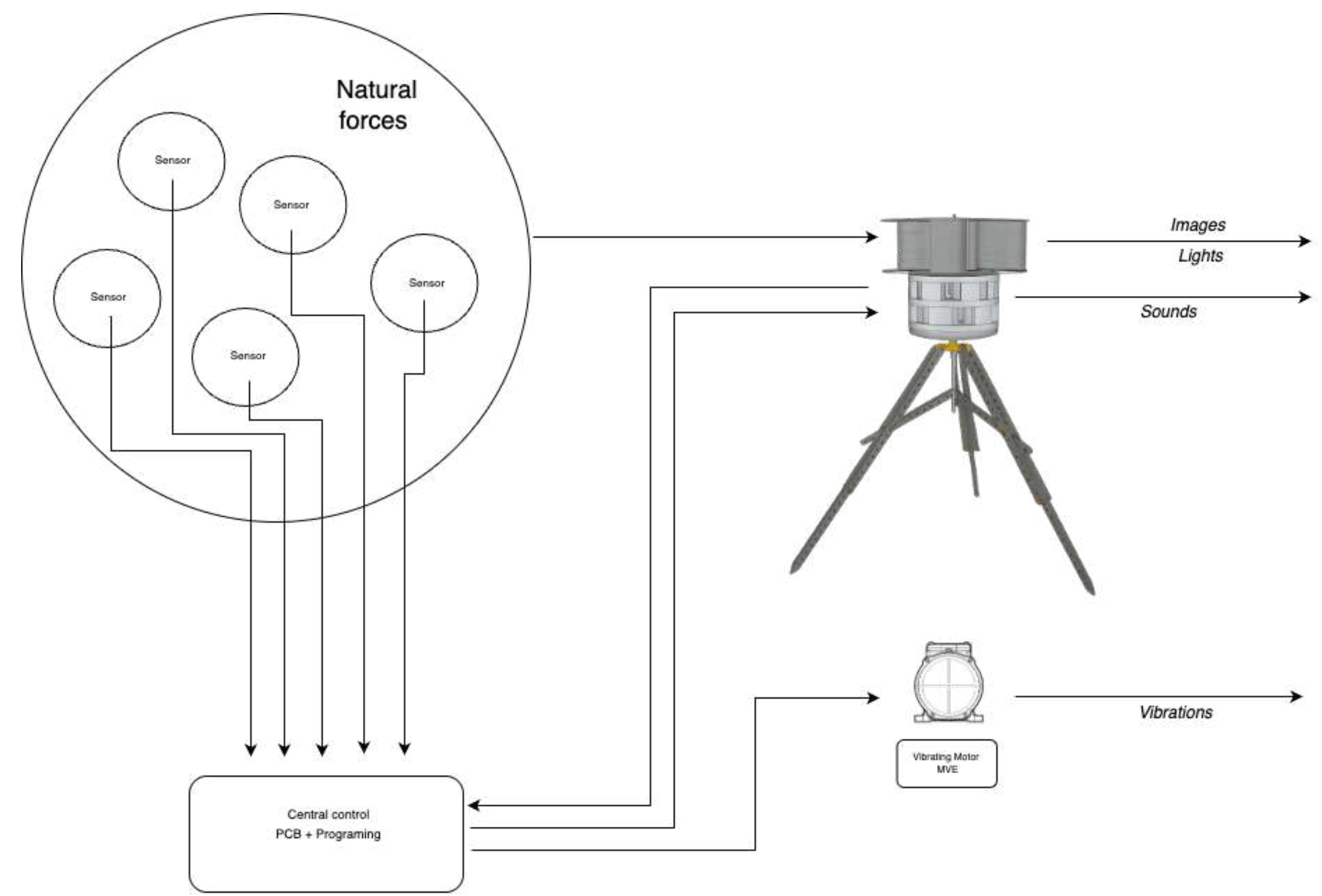
See voluntary documents, pages 6, 23, and 36

Oscilador
MAC 2023



Design of oscillators and operation.

The work transforms invisible forces of nature into sounds and vibrations. It is activated in two ways: on one hand, the wind drives blades that make a siren resonate through rotors; on the other, environmental sensors capture data from these natural forces and convert them into signals that activate motors, including an MVE that transmits vibrations to the ground. All these movements are coordinated through a central controller, an 'artificial brain' that, using algorithms developed by specialists and the community, organizes a harmonic symphony that amplifies the voice of the territory along the Calle Calle River waterfront in the Los Ríos Region.



Parts

5 industrial vibrating motors (MVE) placed under each siren and approximately 4 m apart from each other. The function of these motors is to work together to create vibrational compositions that use the waterfront structure as a resonating chamber. The motors will be controlled by a centralized computer capable of generating controlled vibrations that emulate tectonic and wind forces, responding to various sensors such as seismometers, accelerometers, anemometers, and geophones.

Quantity and capacity: 5 motors, capable of generating torque between 100 and 500 kg.

Control: each motor can be operated independently or synchronized in terms of speed, acceleration, direction, and start/stop ramps.

Orientation: they will be positioned along a straight north–south line.

Control system: PCB with 32-bit dual-core Xtensa LX6 microcontroller, Modbus RJ45 interface

Sensors:

Anemometer

Measures wind speed and direction.
Allows recording how air currents vary in intensity and orientation.

Seismic accelerometer / Vibration sensor

Captures ground movements and vibrations.
Makes it possible to translate the “breathing” and pulse of the earth into sound.

Digital barometer

Records atmospheric pressure.
Reflects changes associated with meteorological and climatic phenomena.

Water turbulence sensor (turbidimeter or flow sensor)

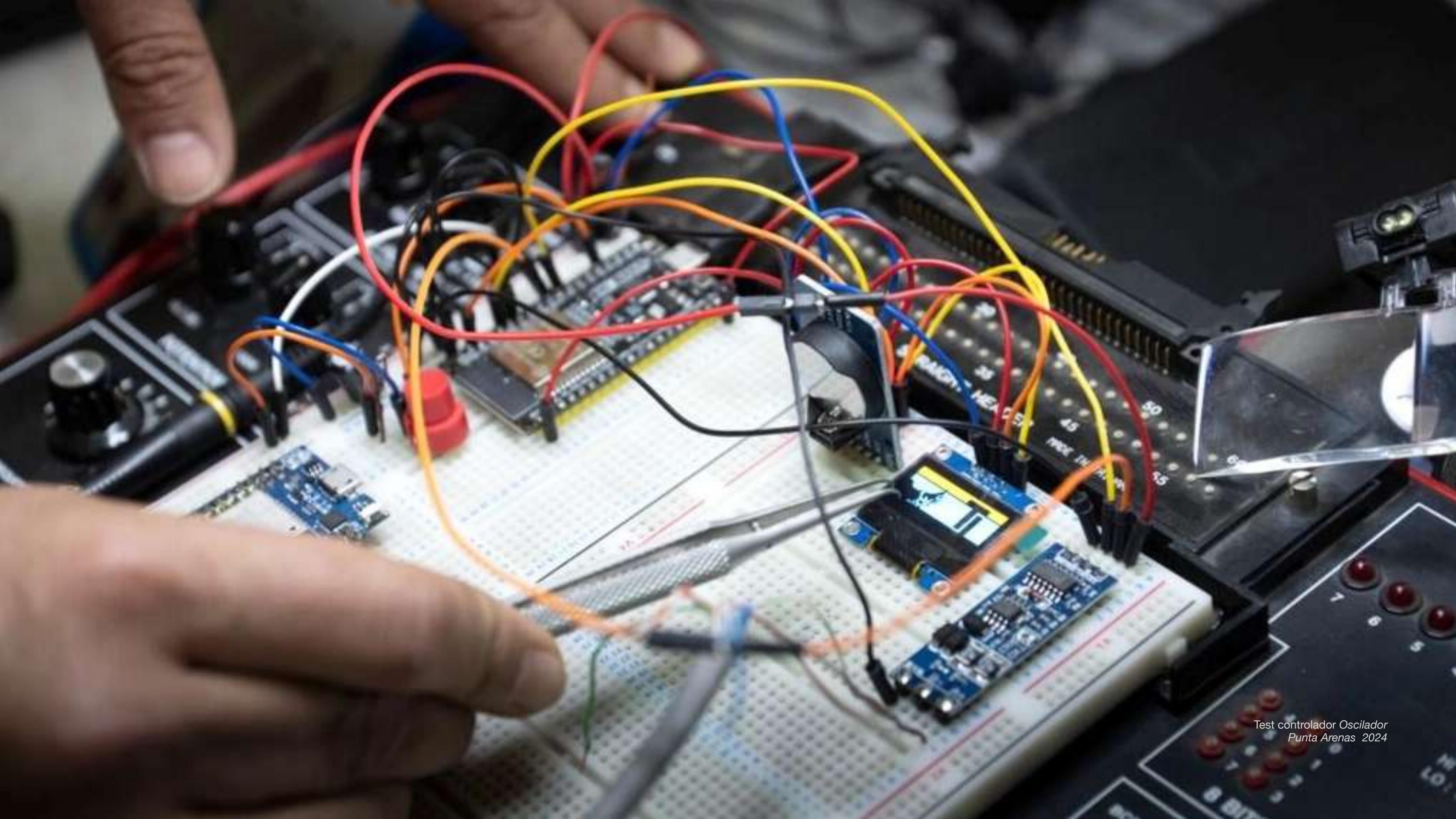
Detects variations in water movement and the presence of suspended particles.
Allows “listening” to the invisible energy of the river’s current.

Water temperature sensor

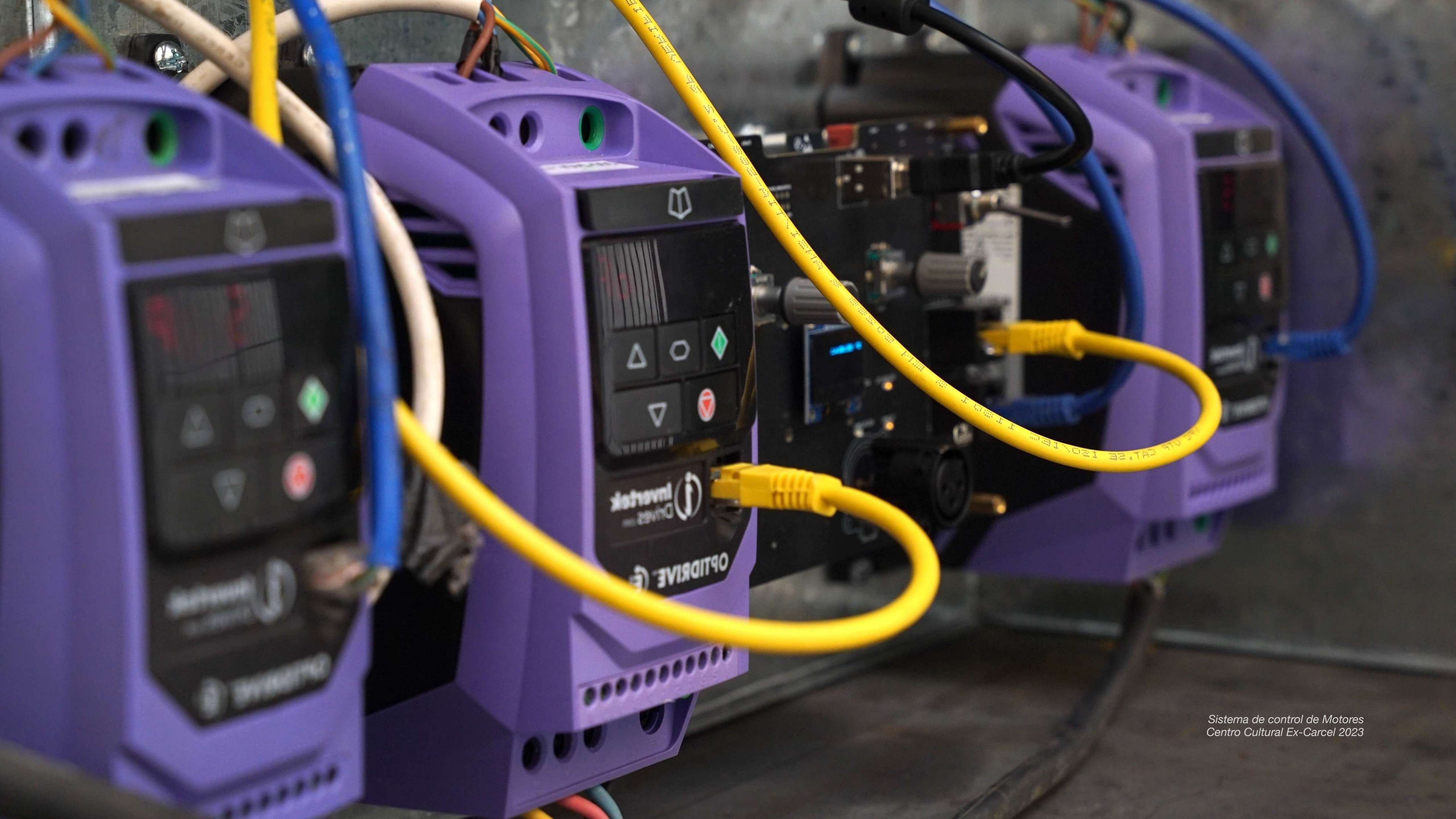
Records how temperature varies at the surface and at different depths.
This is key data for interpreting the behavior of the aquatic ecosystem.

Water level sensor (hydrostatic or ultrasonic)

Monitors fluctuations in river height.
Provides information on tides, rises, or drops in flow.



Test controlador Oscilador
Punta Arenas 2024



Sistema de control de Motores
Centro Cultural Ex-Carcel 2023









Instituciones asociadas:

Ilustre Municipalidad de Valdivia

Parque Prochelle

Corporación Cultural Municipal Valdivia (CCM)

Festival Tsonami 2027

Laboratorio Costero Calfuco, UACH

Instituto de Cs. Navales y Marítimas de la UACH

Instituto de Artes Visuales UACH

Dirección de Vinculación con el Medio, UACH

Dirección Museológica UACH

Centro Transdisciplinario CEAM, UACH

PAM Plataforma de arte Arte & Medios

Radio UACH

Participantes:

Nicolás Spencer (dirección)

Iván Flores (curaduría y mediación)

Gabriela Urrutia (mediación)

Adrián Silva (mediación)

Andrea Pino (mediación)

Manuela Jacard (coordinación)

Gonzalo Tampier (ingeniería)

Tomás Elgueta (diseño y construcción)

Daniel Tirado (electromecánica y programación)

