



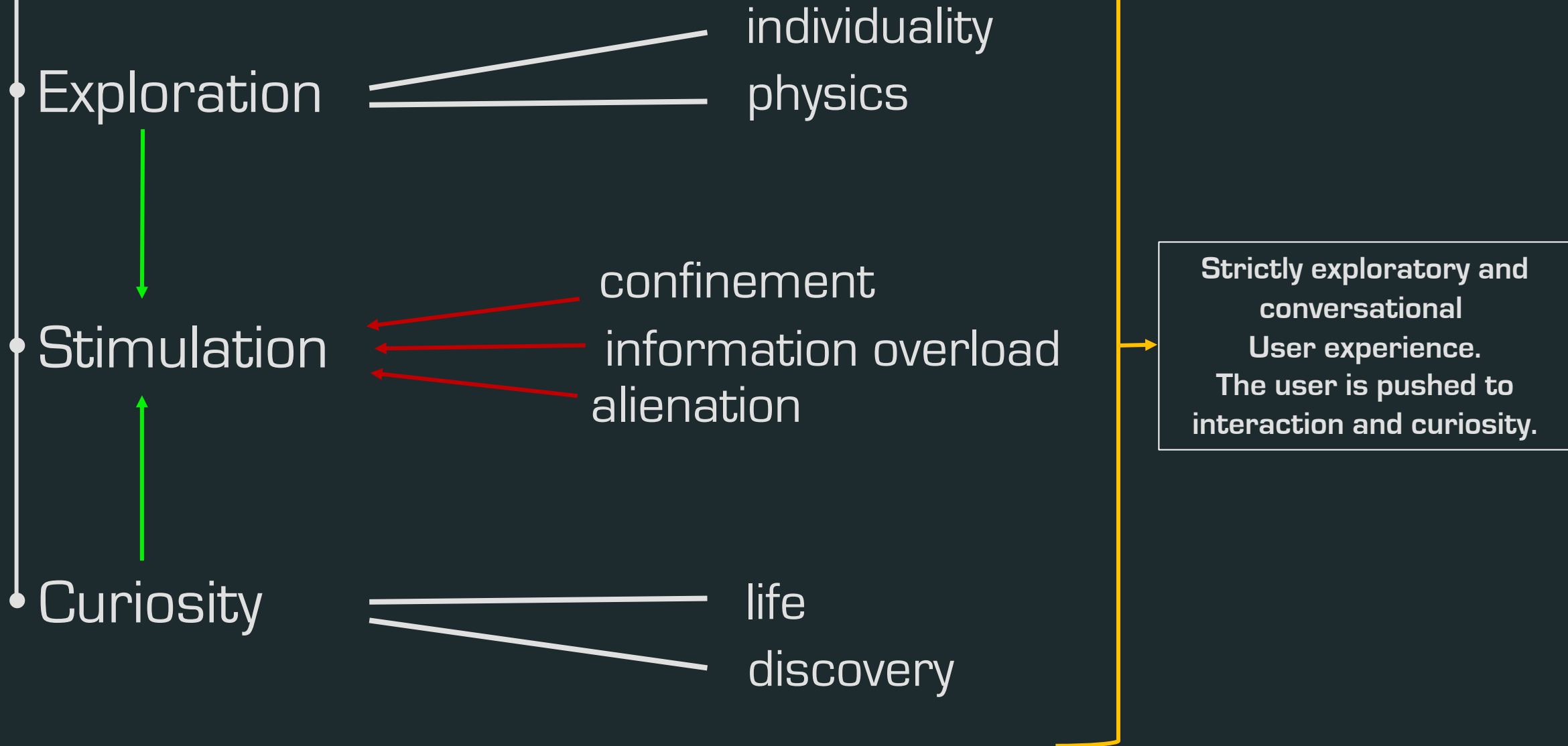
POLITECNICO
MILANO 1863

Creative Programming and Computing
A.Y. 2020/2021

VBRART

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Motivation

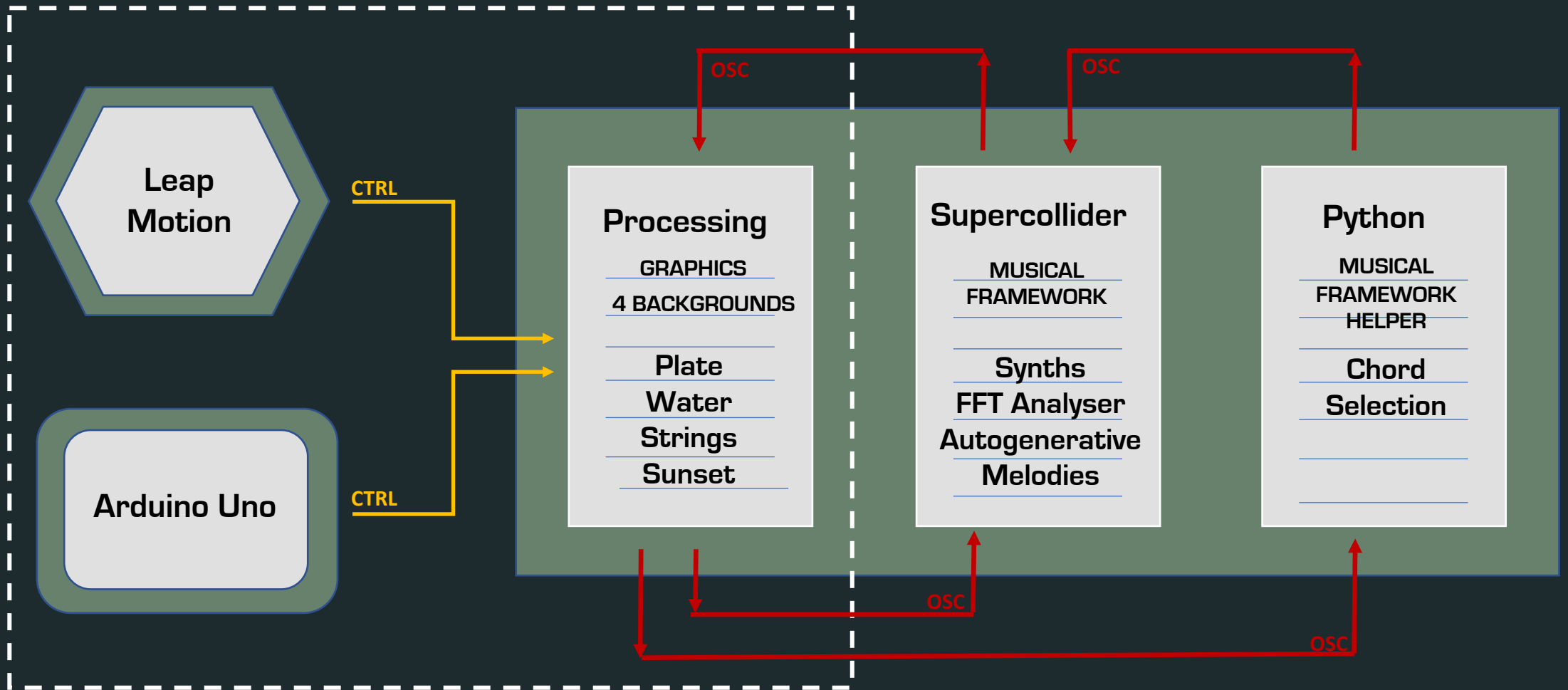


Ondulatory world

- Simple phenomena such as sound and vibration are familiar to us from our birth.
- Their beauty can be fully appreciated provided that we display the appropriate critical thinking and curiosity.
- VBrART is focused on the ondulatory and acoustical phenomena of nature.

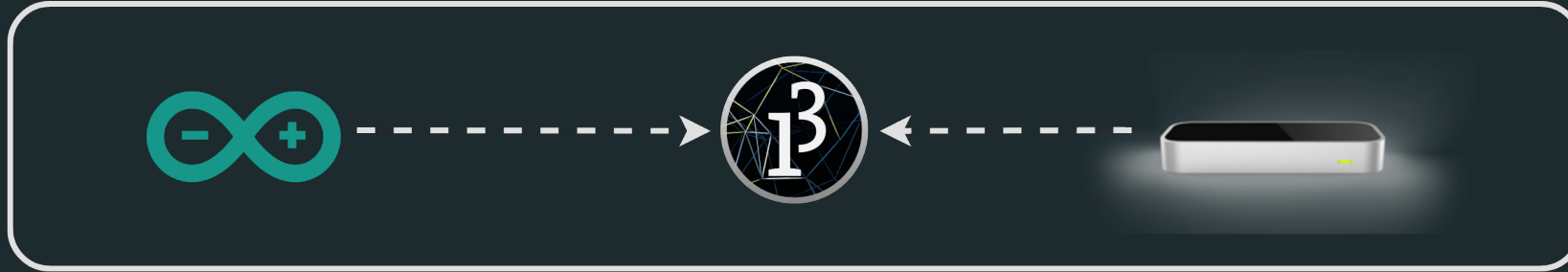
Structure and interaction

VBRART PROCESSING ENVIRONMENT



Communication

SENSORS



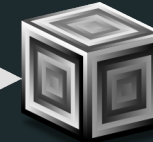
OSC

VibratingPlate/Water/Strings

Client



Server



VibratingSunset

Client/Server



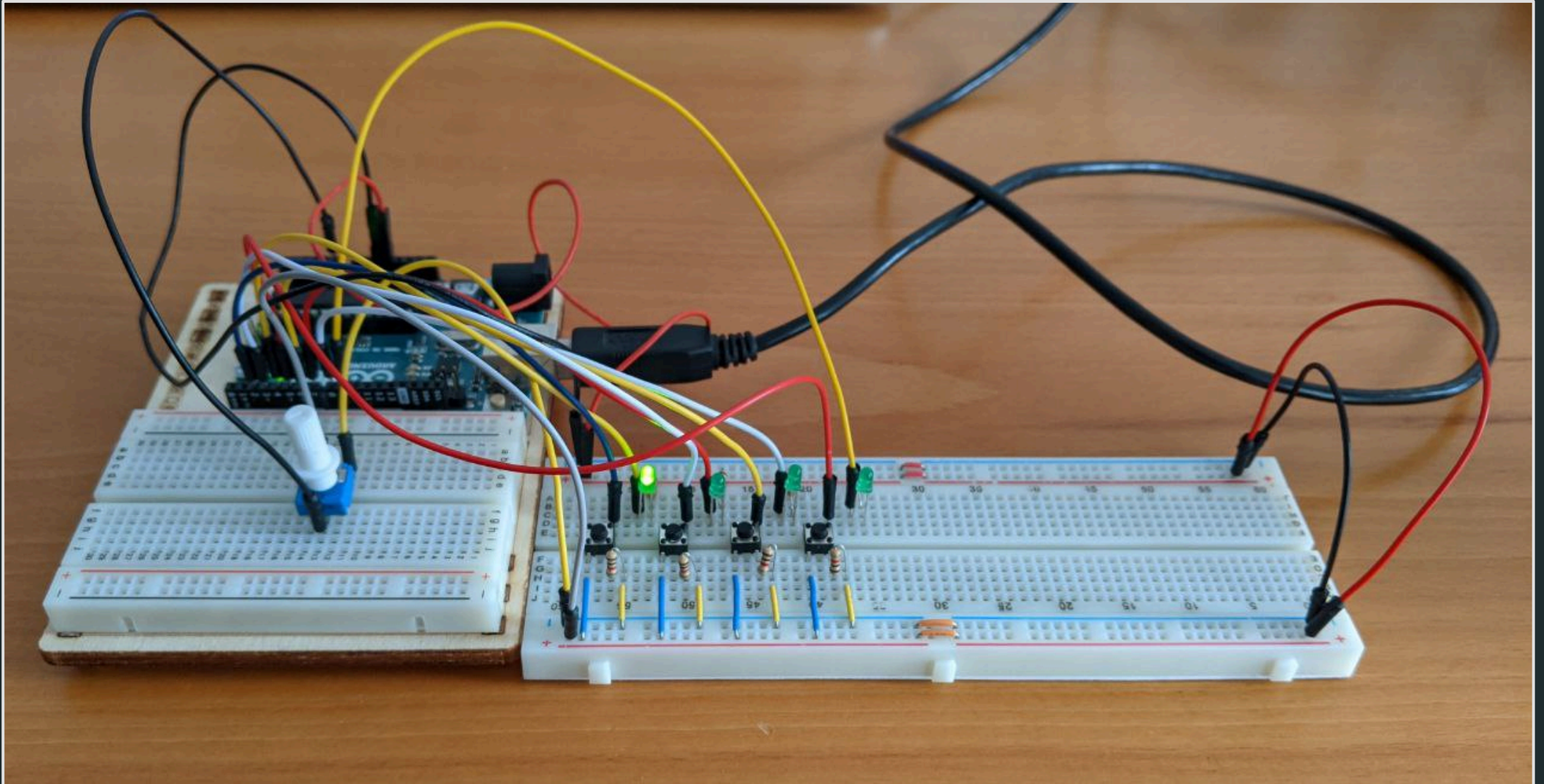
Client/Server



Client/Server

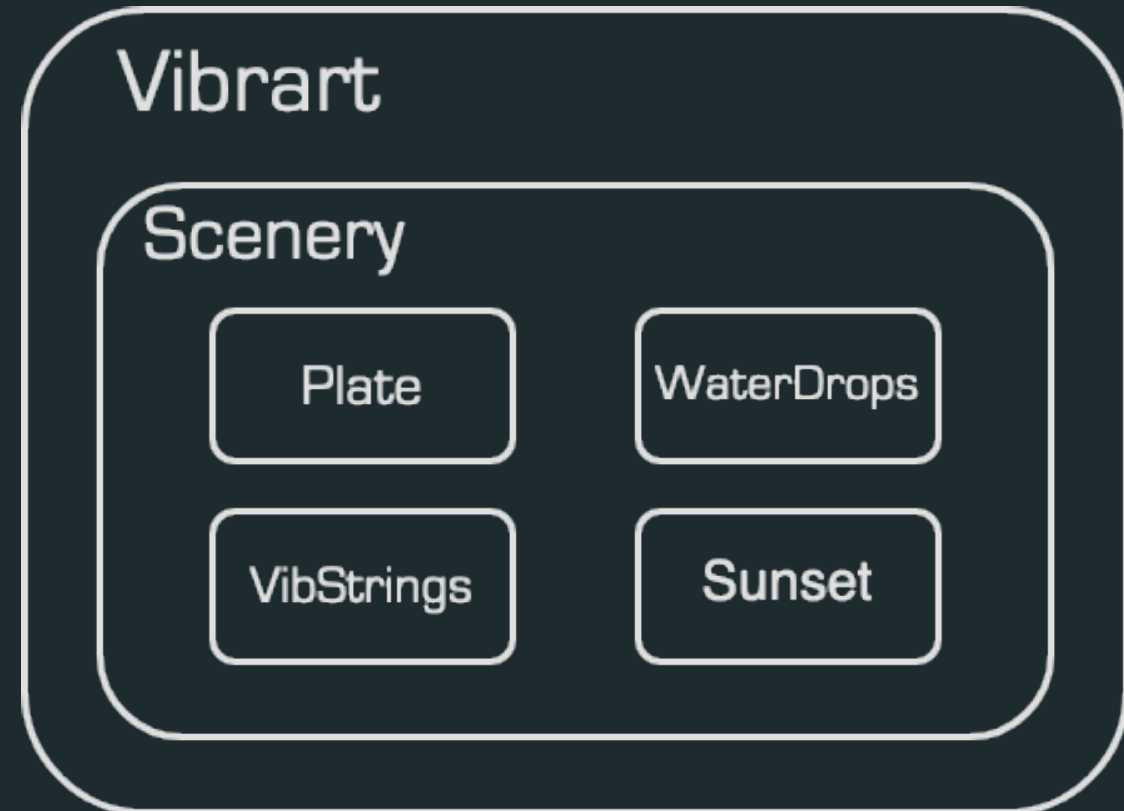


• Electronic circuit



• Scenario – the environments

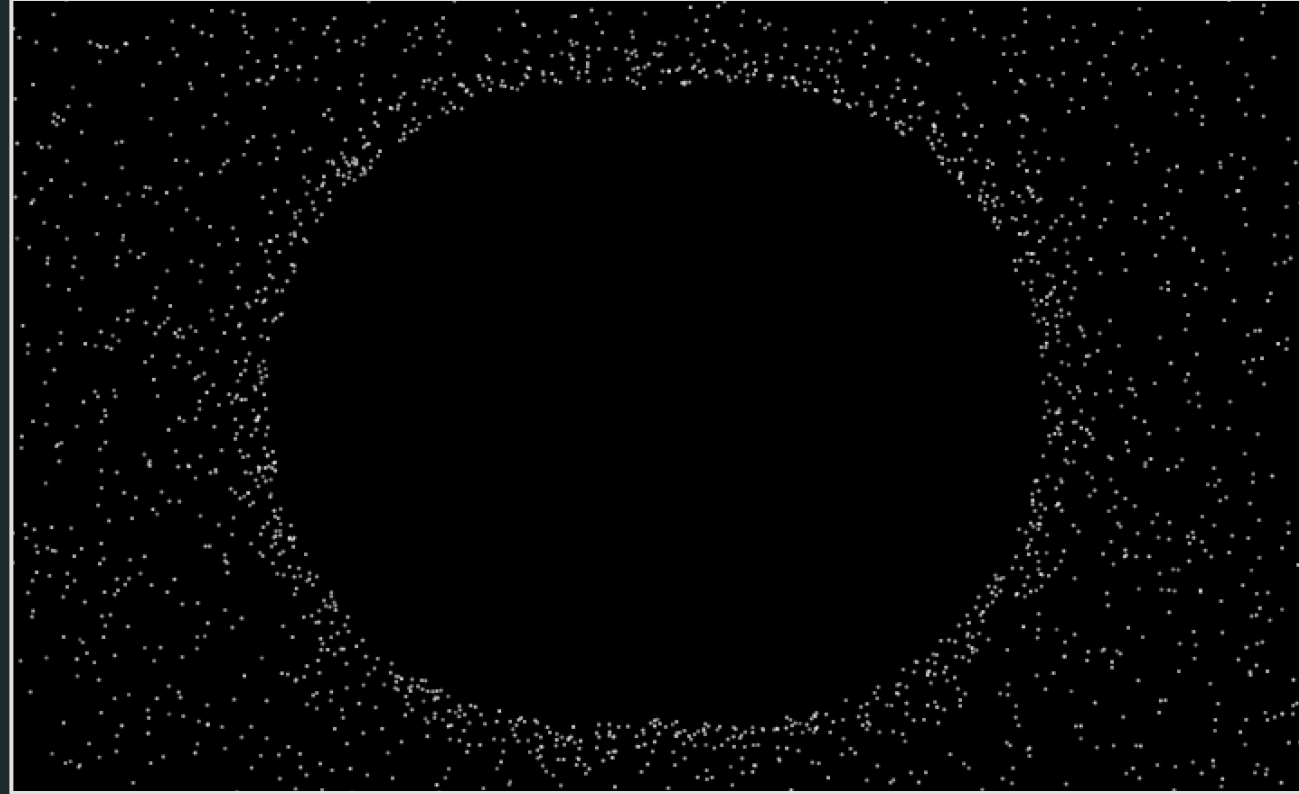
- Vibrart:
 - Main program;
- Scenery:
 - Core of the project – handles the complexity for the switching between backgrounds;
- Environments:
 - Self-contained domains representing natural phenomena interpretation;
 - User interaction with the given environment;



VibratingPlate

- Based on a simulated plate eigenfrequencies;
- Realized with a particle system undergoing the effect of attractors and repulsors;
- Attraction/repulsion force based on current frequency;
- Modeled in toxiclibs physics;

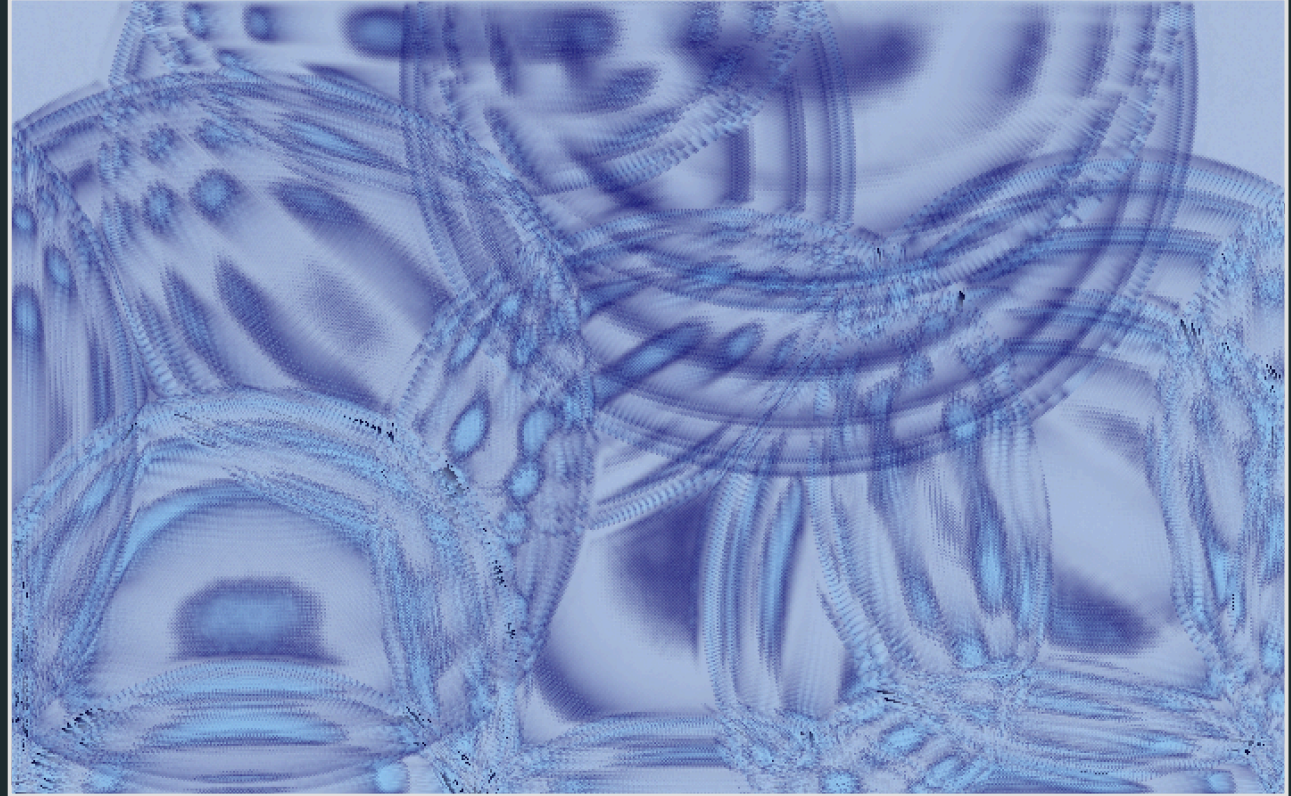
CHLADNI PATTERNS ON A PLATE SIMULATION



VibratingWater

- Implements wave propagation in water including damping;
- Interaction via mouse or Leap Motion;
- Color mapping through gradients;

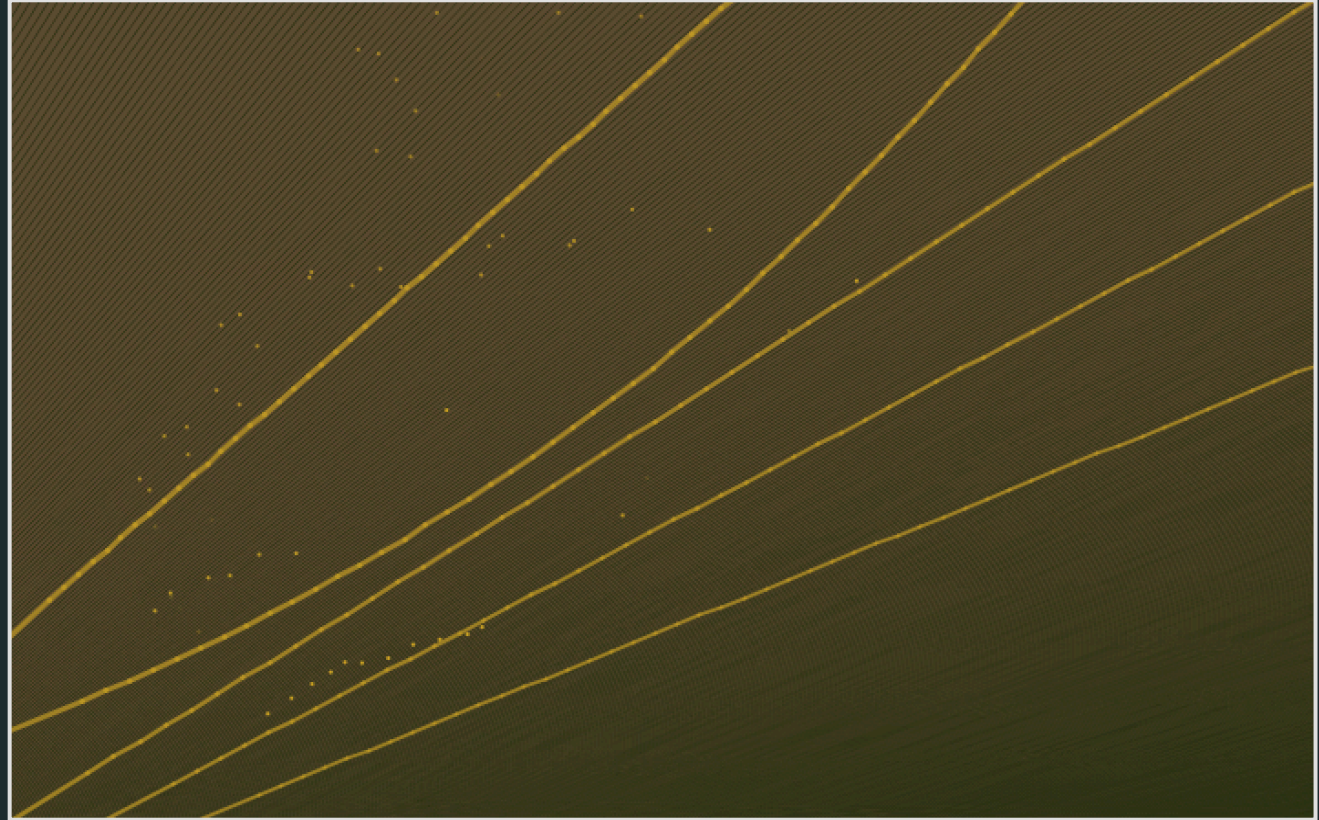
PROPAGATING SPHERICAL WAVES IN WATER SIMULATION



VibratingString

- Implements the vibration of a string subjected to tension;
- Plucking modeling;
- Interaction via mouse or Leap Motion;
- Particles generation;

VIBRATING STRINGS SIMULATION



VibratingSunset

The sun is depicted by
a CA cycle 2D grid:

- 5 rules of life

FFT lines representing the
sea;

- FFT data received from Sci

Stars reacts to FFT data
received from Supercollider

VIBRATING SUNSET ABSTRACTION



• Music framework

VibratingPlate

Moog like synthesizer with frequency changing according to the potentiometer value coming from Arduino

VibratingWater

- Granulator as background textile sound generator
- User interaction triggers waterdroplet sounds

VibratingStrings

- Kalimba-like monodic melody follows a transition probability matrix
- Plucked string sound triggered by user interaction and based on famous Eventide H3000 patch

VibratingSunset

- Marimba and FM synth, two voices melody
- Pad chords generated by Python (Markov model)
- Based on six different scales

"The object of **art** is not to reproduce **reality**,
but to **create** a reality of the same **intensity**"

Alberto Giacometti

Thank you for your attention!