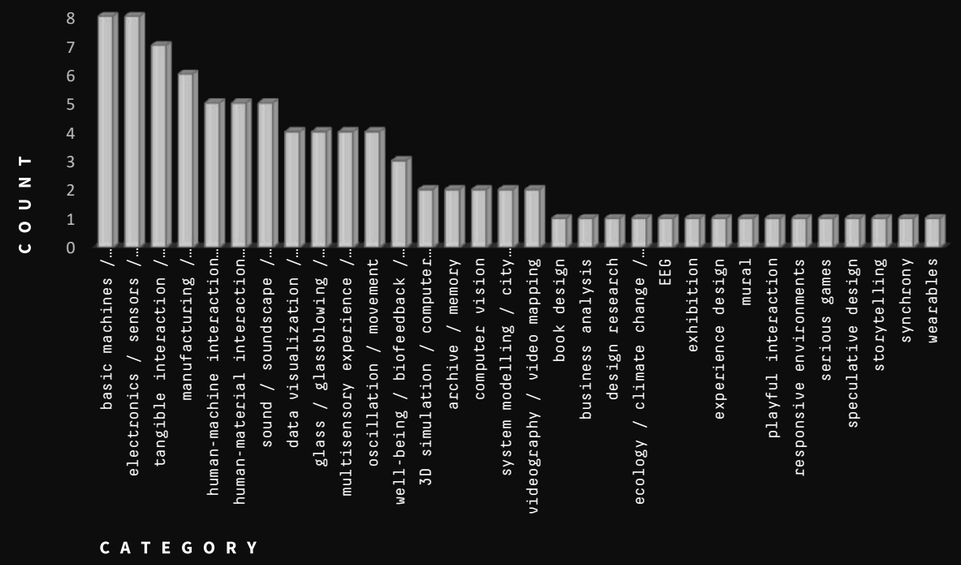
PORT
FOLIO

Selected Works

PORTFOLIO TOPIC DECOMPOSITION



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BORN IN	20/04/1989
FROM	TURKEY
RESIDES IN	STOCKHOLM/SE

BIO

Born in 1989, Özgün is an interaction designer and researcher based in Stockholm. She is a graduate of MA Information Experience Design and MA Animation at the Royal College of Art, London. Her overall vision is “Thinking like a scientist, tinkering like an artist.” Having a passion for computational design and background in animation she continued to work with movement via her kinetic machines where she combined bio-sensing, simple mechanics and craftsmanship. Since October 2018 she has been a researcher at Mediated Interaction Design at KTH. Her focus is in designing for and with the body, blending aesthetic qualities into the design of bareskin interfaces.

01 | HARLEQUIN — AN EEG DATA SCULPTURE

basic machines human-machine interaction material-driven data visualization EEG computation mechanisms and devices electronics videography

Client
Ideal Standard
2015

Project Website: idealstandardprojects.com
Artist Interview: vimeo.com/121590554
Full Video: vimeo.com/146554644

Tools

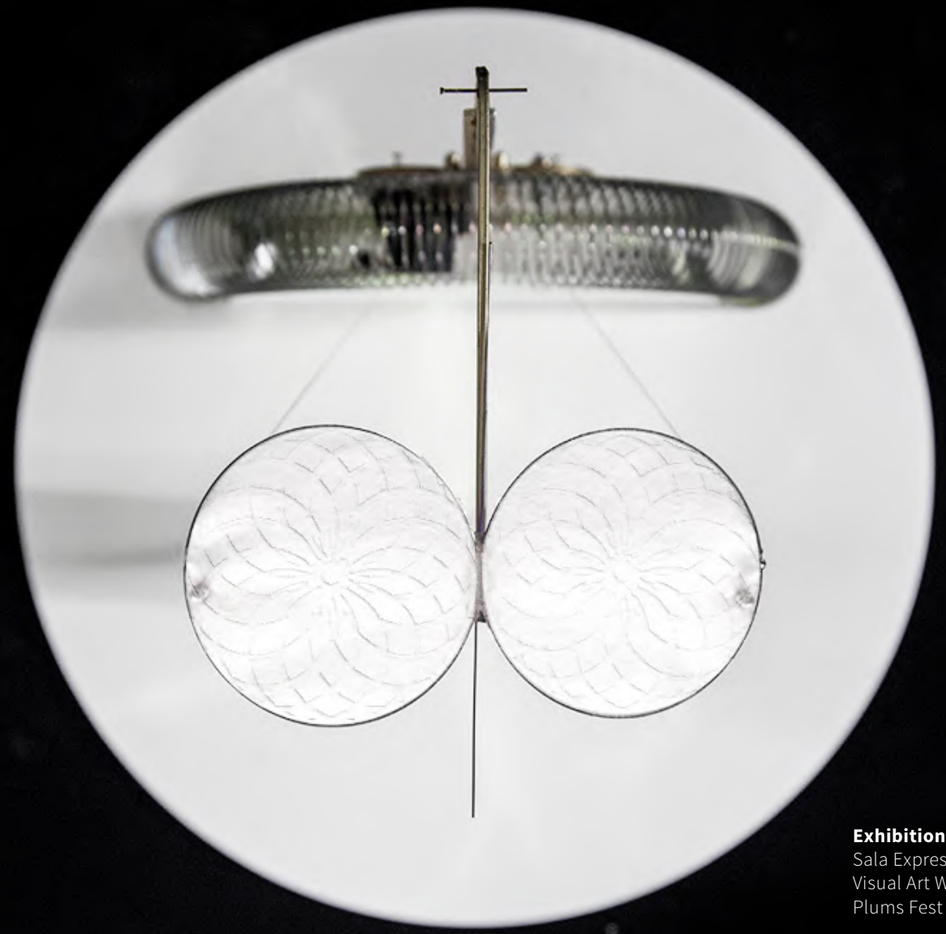
Software
Processing
Adobe After Effects

Hardware
Arduino Uno
Servo motor
High-power LED

Physical
Japanese washi paper [hand engraving]
Heat transfer foil
Clockwork & metalsmithing

Deliverables
Project Treatment
Pre-visualisations [Format: sketches, renders, mid-term poster]
Artist Interview
Interactive Installation
Film

Process
Research & Literature Review
Quantitative Data Analysis [EEG Data from Mindlab, UK]
Conceptual Design & Prototyping
Construction
Video-shooting & Editing



Exhibition/Showcase
Sala Expressioni 2015, Milan
Visual Art Week 2017, Mexico City
Plums Fest 2018, Moscow

Brief

Exploring, examining and reinterpreting the brain activity data [EEG] collected by neuroscientists at Mindlab, UK as part of the commissioned research project *Does Function Affect Our Perception of Beauty*[1], which investigates how humans respond to form and function of everyday objects at the neural level.

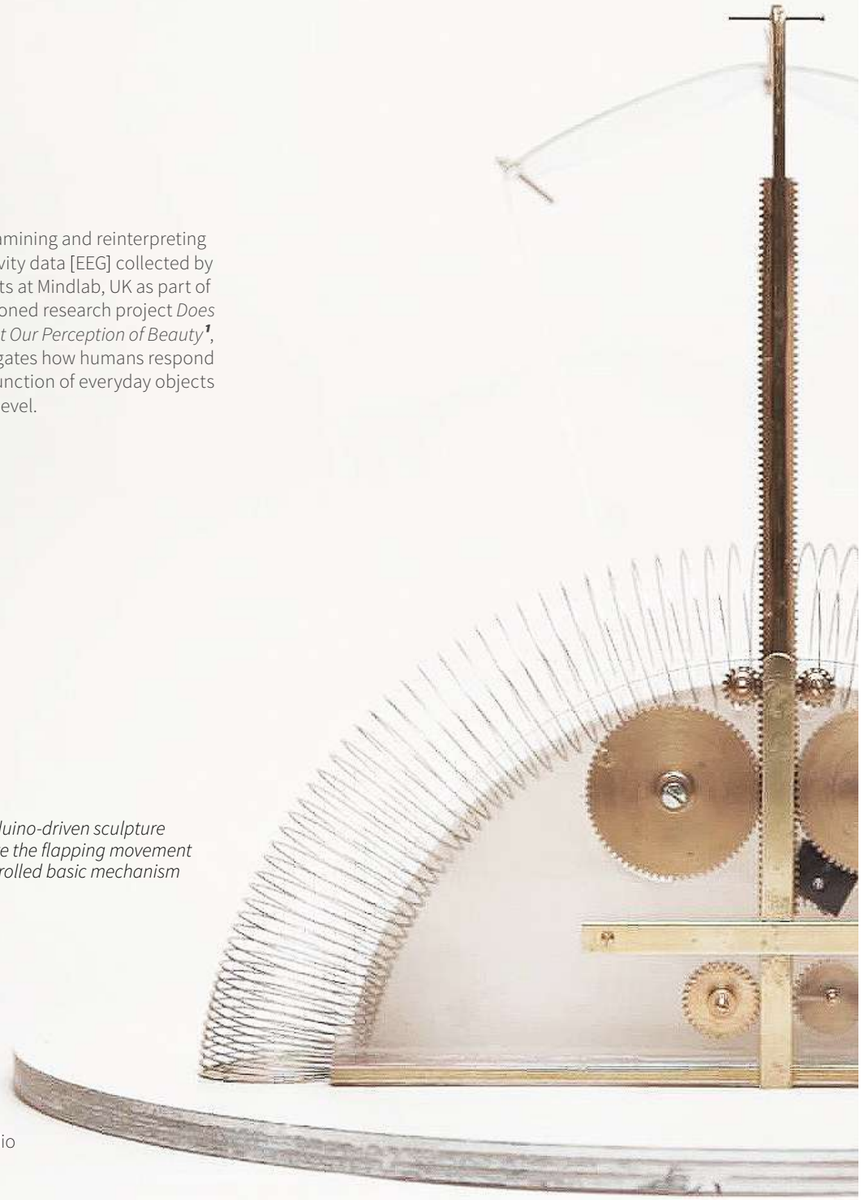


figure 1.1: *Arduino-driven sculpture to demonstrate the flapping movement via servo-controlled basic mechanism*

Project Description

As one of the three commissioned artists, my approach to this inquiry was through a basic kinetic machine **[figure1.1]** in which form, light and movement have been controlled in real-time by different bandwidths of the supplied EEG data [theta, alpha, beta1, beta2]. Starting with a phenomena of *Functional Beauty* [2] from nature, I was inspired by 'structural coloration' of butterfly wings where change in transparency, color and patterns are observed via interference and refractions on microscopically structured surfaces when light hits it at different angles e.g. when the wing is moving, flapping. **[figure 1.2]**

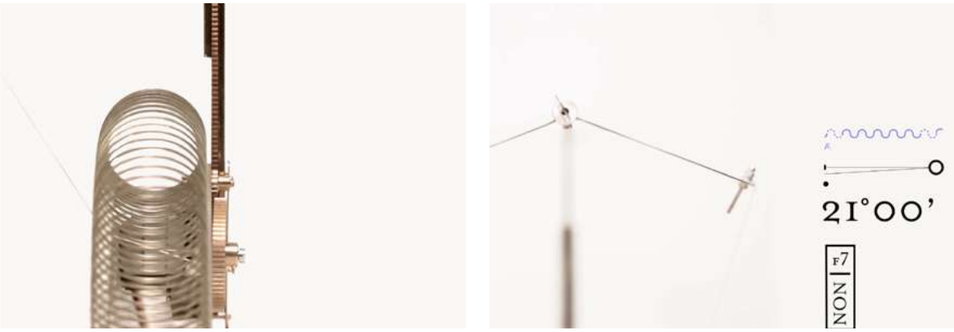
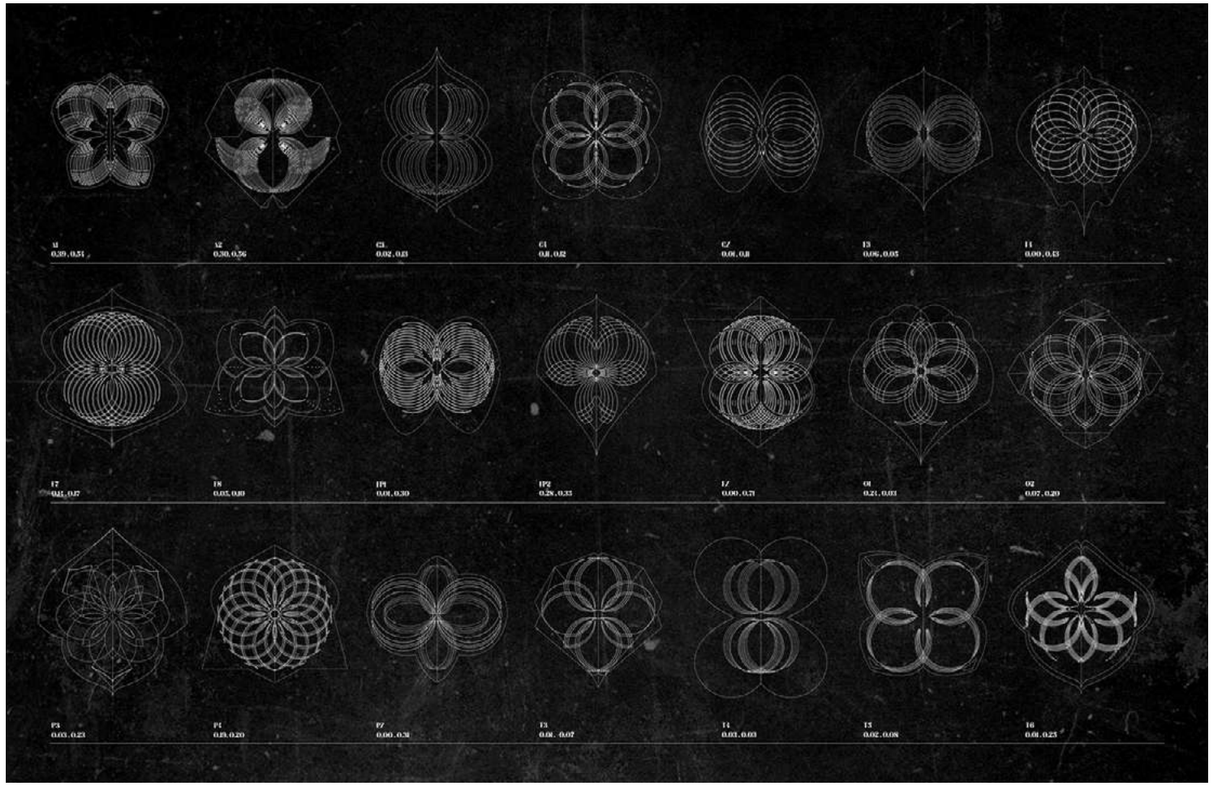


figure 1.2: *Arduino-driven sculpture to demonstrate the flapping movement*

Bringing this phenomena together with the 21-channel EEG data, I used the Theta activity to generate wing patterns in Processing **[figure 1.3]**, Alpha activity to determine the intensity of light hitting the wings **[figure 1.6]**, and Beta 1 & 2 activities to control bi-directional movement of the wings. **[figure 1.4 & 1.5]** The outcome is a real-time kinetic data sculpture that brings EEG data to life in physical space, and a film that had its premiere at Ideal Standard's Sala Expressioni'15 in Milan. **[figure 1.7]**

Reference[s]

1. https://www.idealstandard.be/nl/pers/2014/2015-03-12-aesthetic.html
2. Glenn Parsons and Allen Carlson. Functional Beauty. New York, NY: Oxford University Press 2008



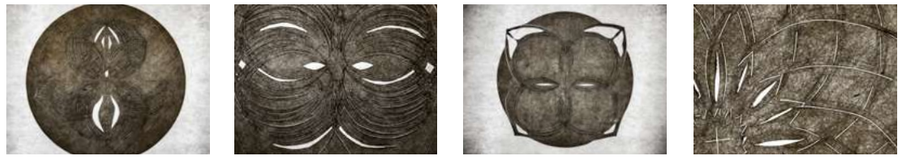


figure 1.3: *Computer-generated patterns using cortical theta wave data from 21 channels, etched on Japanese washipaper. data collected by Mindlab.*

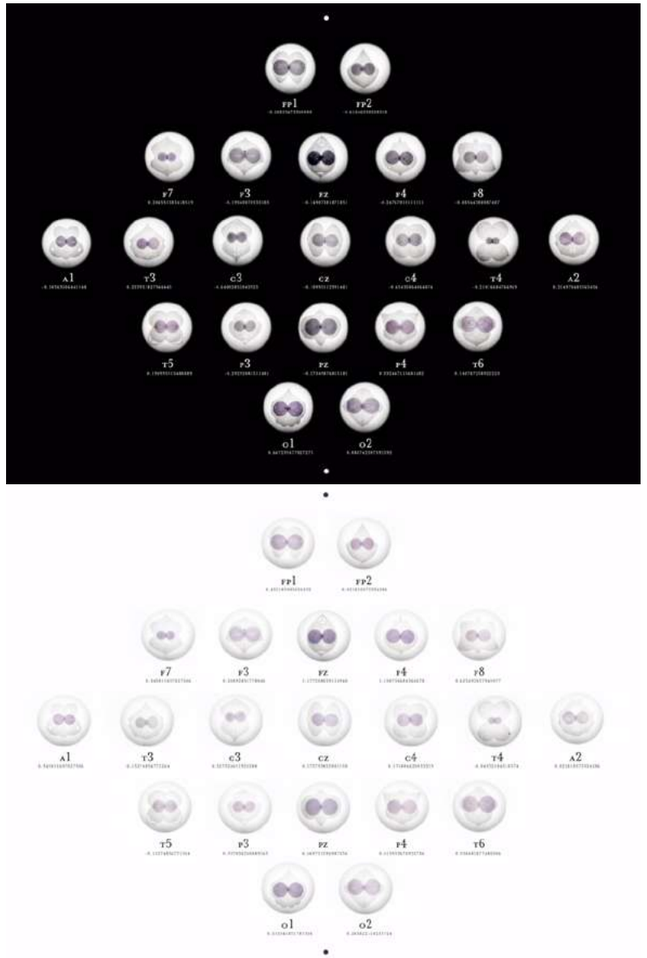


figure 1.4:
Results from 21 channels. Beta-1 wave data set controlling the servo's rotation angle. Non-functional data set [top], functional data set [bottom]

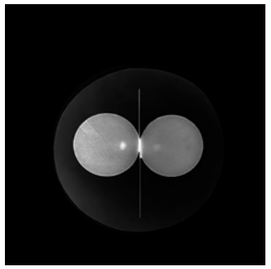
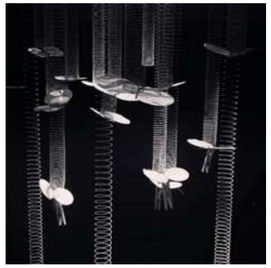


figure 1.5:
Results from 21 channels. Beta-2 wave data set controlling the motion of the springs



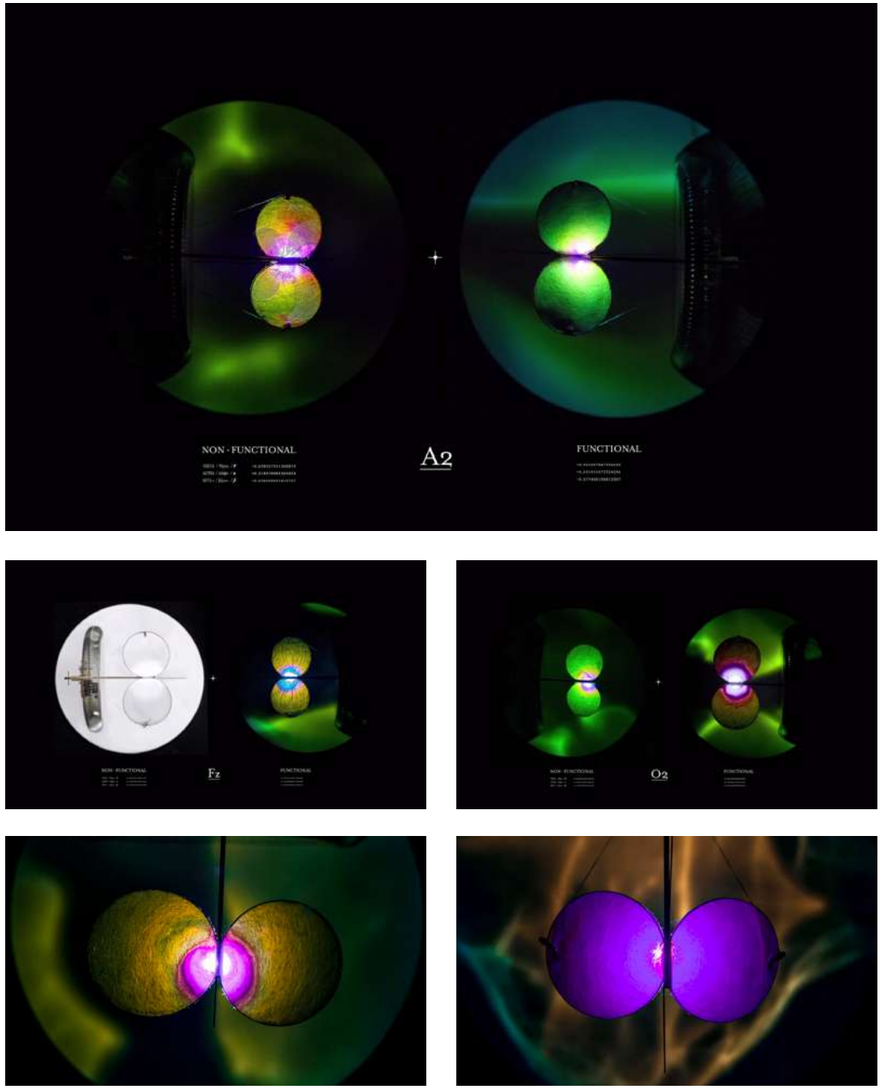
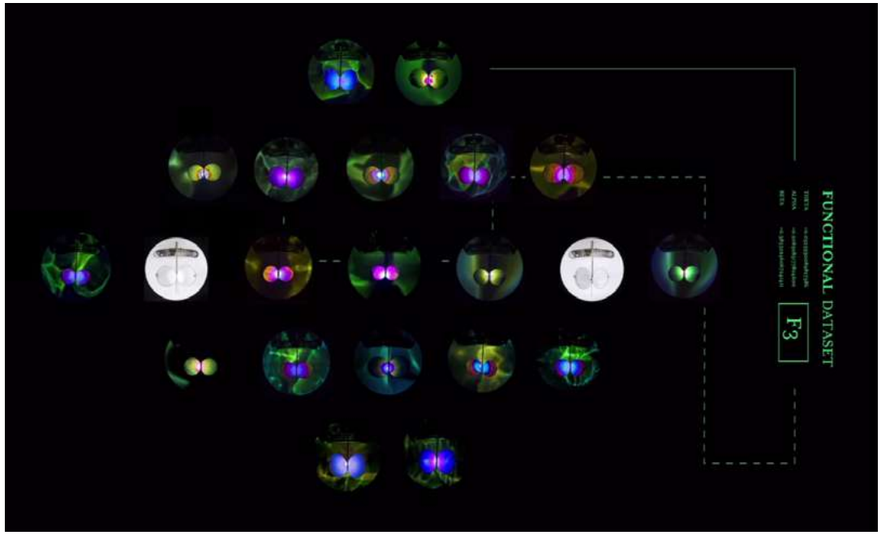


figure 1.6: *Alpha wave data mapped onto a single led's intensity value, to reveal patterns & pigments on the etched Japanese washi paper*



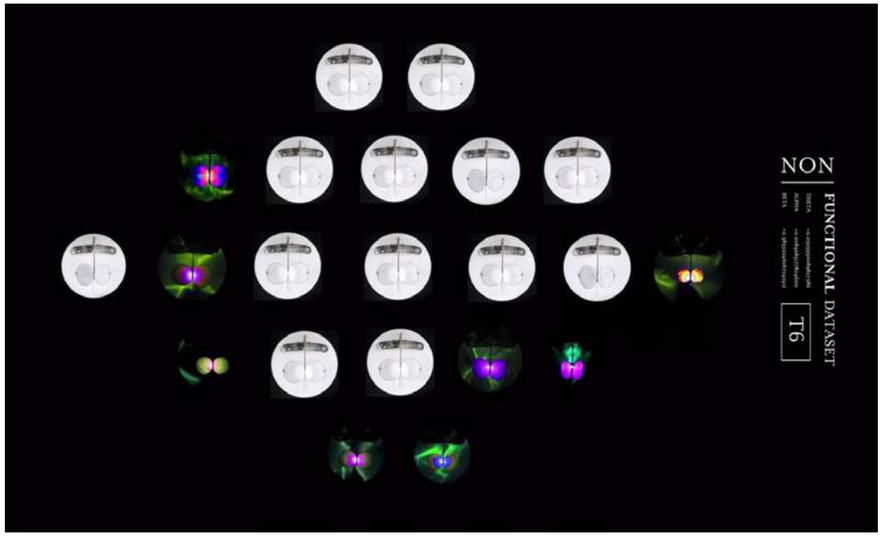


figure 1.7:

Result map for Beautiful & Functional data set. colored units indicating high arousal

Result map for Beautiful & Non-Functional data set. monochrome units indicating low arousal

02 | LUX MOTIVE — THERAPEUTIC BREATH PACER

biofeedback **basic machines** **well-being**
smart materials human-machine interaction
manufacturing electronics oscillation
3D simulation exhibition

Client
Ventura Projects, Milan Design Week'17
In-Motion Collective Exhibition
2017

**** Patent*** *2017 08798*

Tools

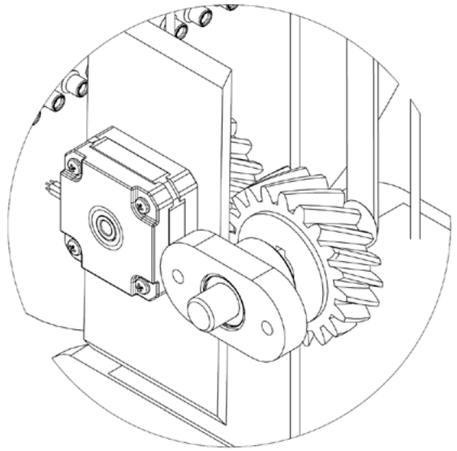
Software
Autodesk Maya
Rhino
Adobe Illustrator

Hardware
Arduino Uno
XeThru respiration sensor
Standard hearmotor
DC motor driver

Physical
Self-adhesive smart film
Lasercutting
Carbon fibre rods
Cast Acrylic

Deliverables
Kinetic Interactive Installation [MDW'17]
Industrial Design Product & Deck
Exhibition Identity Design Material [Digital & Physical]

Process
Research & Ideation
Prototyping [MDF, Acrylic]
Electronics & Sensor testing
Final Build & Exhibition setup
Patenting

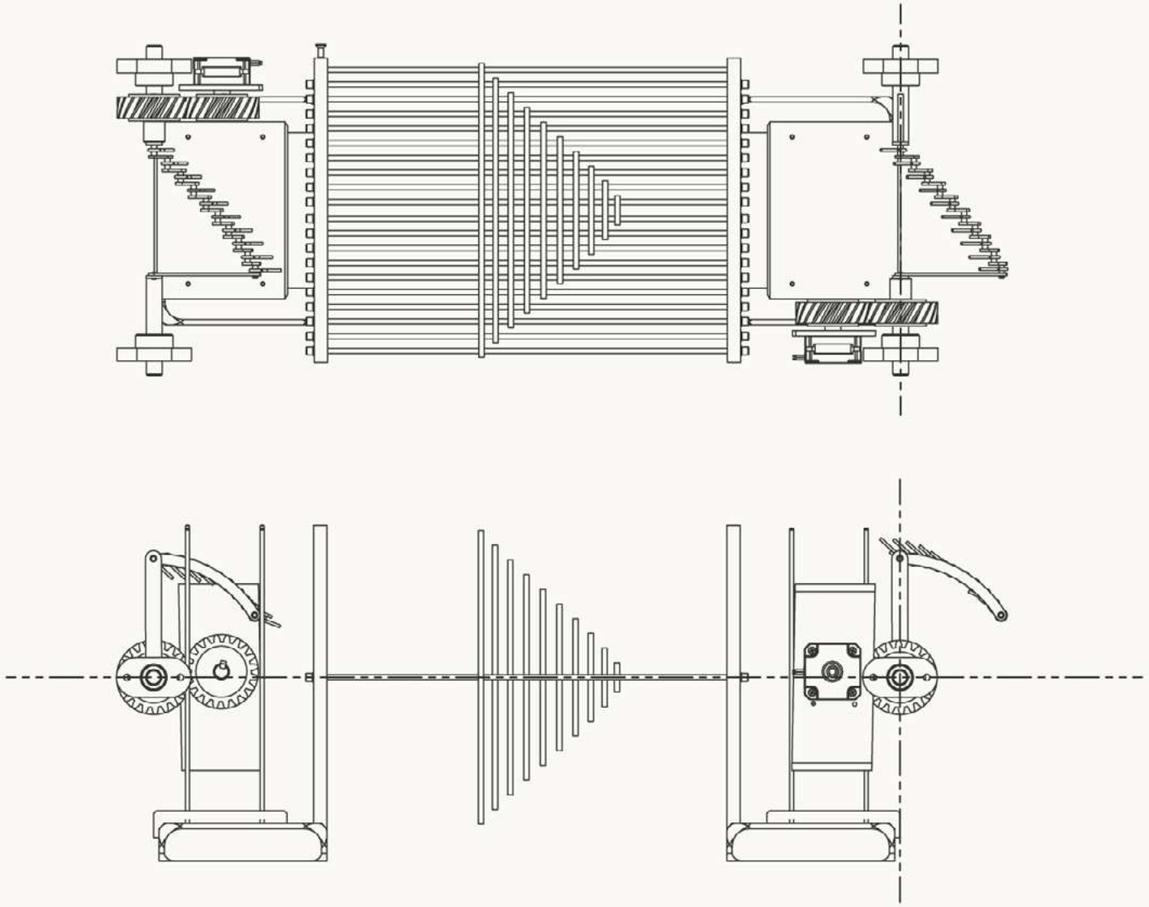


LUX MOTIVE

Lux-motive is a therapeutic luxury design object, that has a user-responsive kinetic mechanism invoking its user to realise a coherent state of breathing. The object is designed to trigger mindful behaviour in healing environments.

—

"[T]he faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character and will. No one is compos sui [master of oneself] if he has it not. An education which should improve this faculty would be the education par excellence".
William James



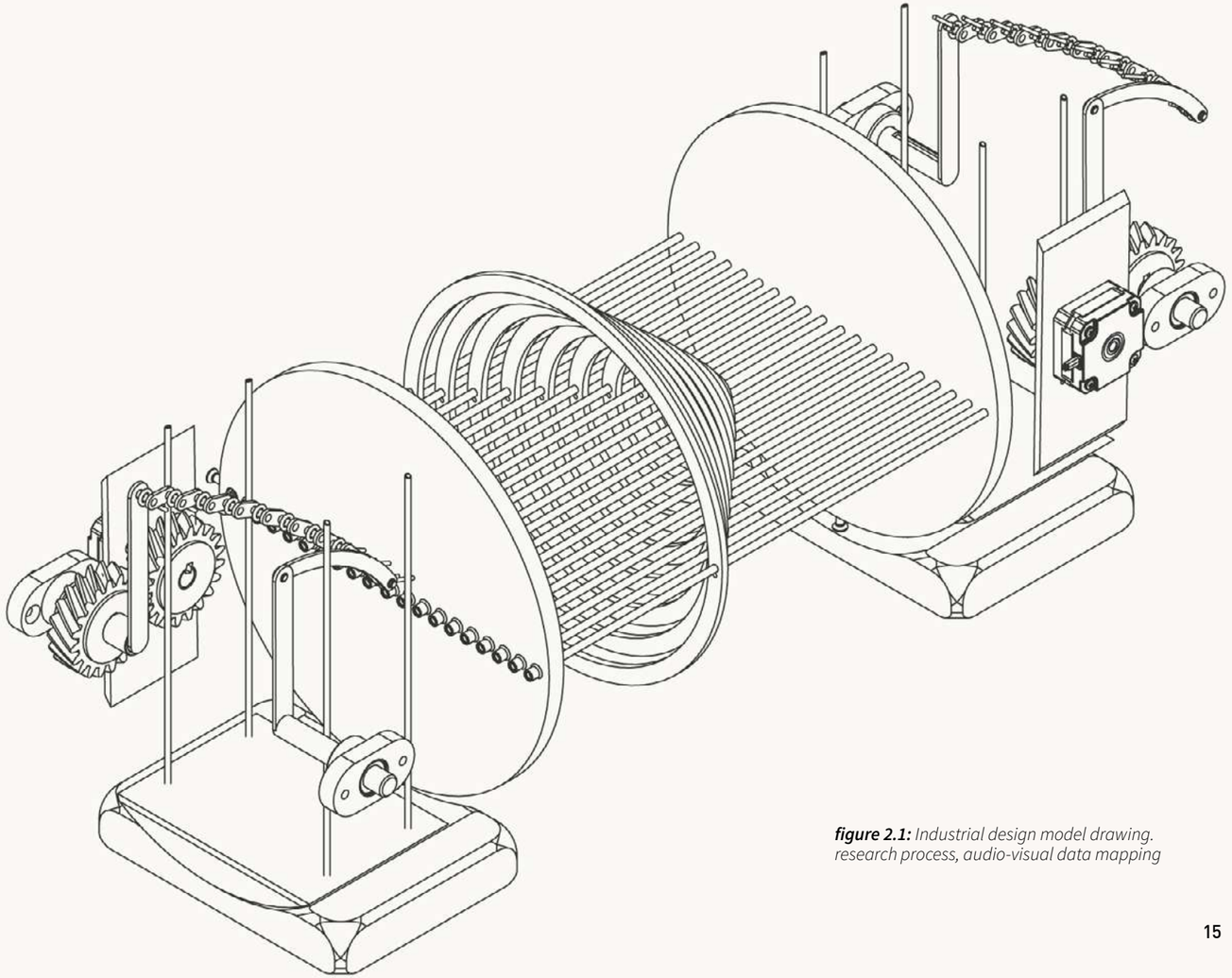
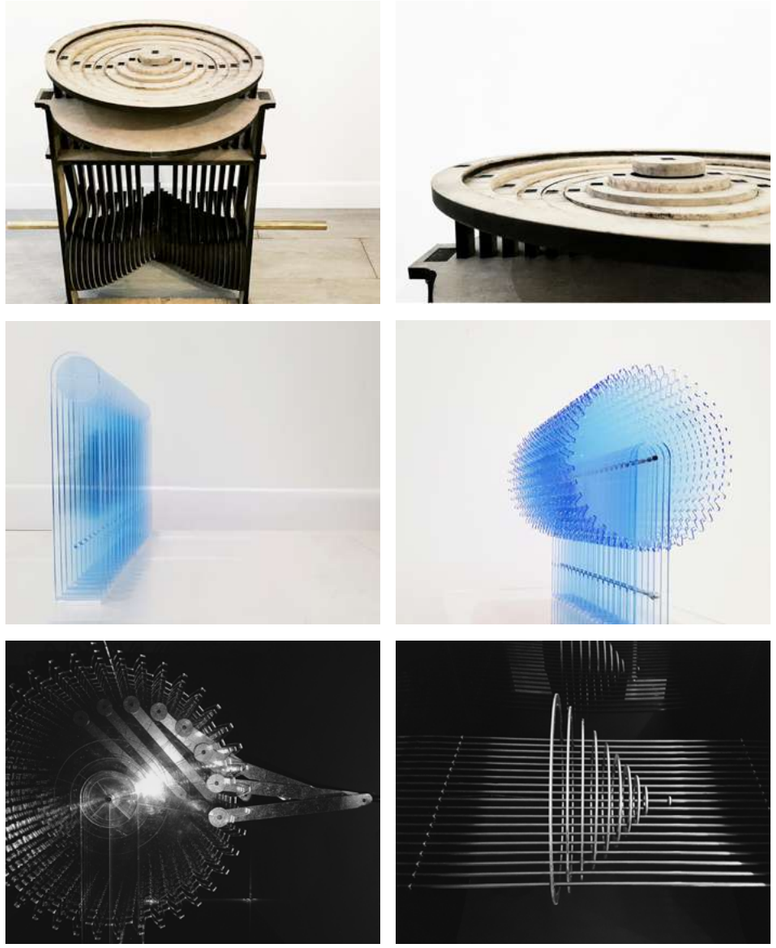
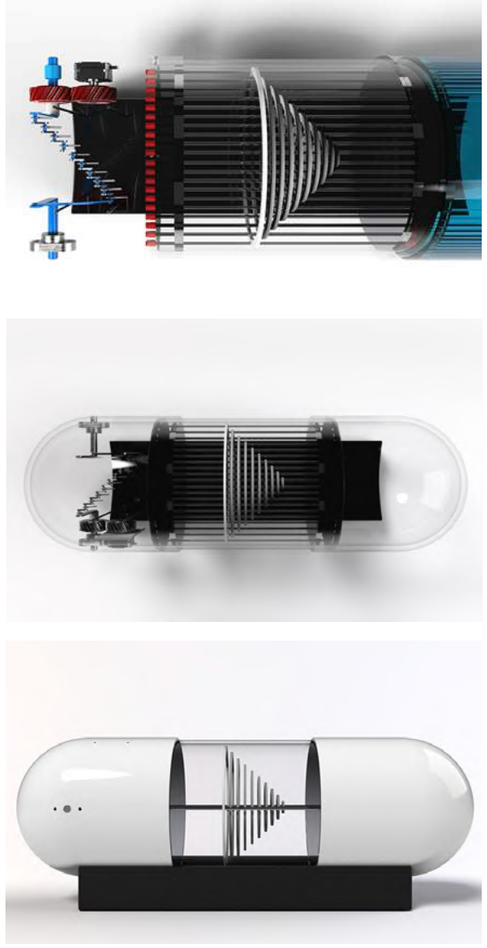


figure 2.1: *Industrial design model drawing. research process, audio-visual data mapping*

figure 2.2:
Various prototypes
[from top to bottom]
1. MDF prototype
2. Acrylic prototype
3. Final build





Project Description

What: *Lux-motive* is a therapeutic design object, that has a user-responsive kinetic mechanism invoking her to realise a coherent state of breathing. **[figure 2.1]**

Why: The aim is to support taking notice of and improving the individual's breathing behaviour in domestic environments.

How: The cyclistic wave movement of the unit attunes from random and erratic to lucid and rhythmic patterns as the breathing behaviour of the user alters. Based on the respiration data monitored over an interval of 60 seconds by the embedded see-thru radar sensor, the system computes an average to provide its user with an optimal breathing pattern to attune to. After the 60 second interval, she is expected to attune inhales & exhales to the rhythmic movement of the rings from left to right, and backwards. **[figure 2.3]**

figure 2.3: *Industrial design model 3D renders.*

Collective Exhibition

In-Motion is a collective exhibition by a group of product and experience designers, exploring 'movement' in the context of data transformations, novel material formations, as well as manufacturing techniques. **[figure 2.4 & 2.5]**

figure 2.4: *Exhibition identity and personal identity design. Milan Design Week'17*

figure 2.5: *Lux Motive Interactive installation at Milan Design Week 2017*

03 | PNEUMATIC NOMADIC — AUDIO SCULPTURES

wearables **tangible interaction** **sound** **scientific instruments** helmholtz resonator glassblowing ceramics metalworking mural soundscape multisensory experience

Client
Royal College of Art, Graduation Project
2015

Tools

Software
Autodesk Maya
Rhino
Adobe Illustrator

Physical
Earthenware clay, bone china
Glass & recycled test-tubes
Stainless Steel
Flexible fabric
Acrylic & spray

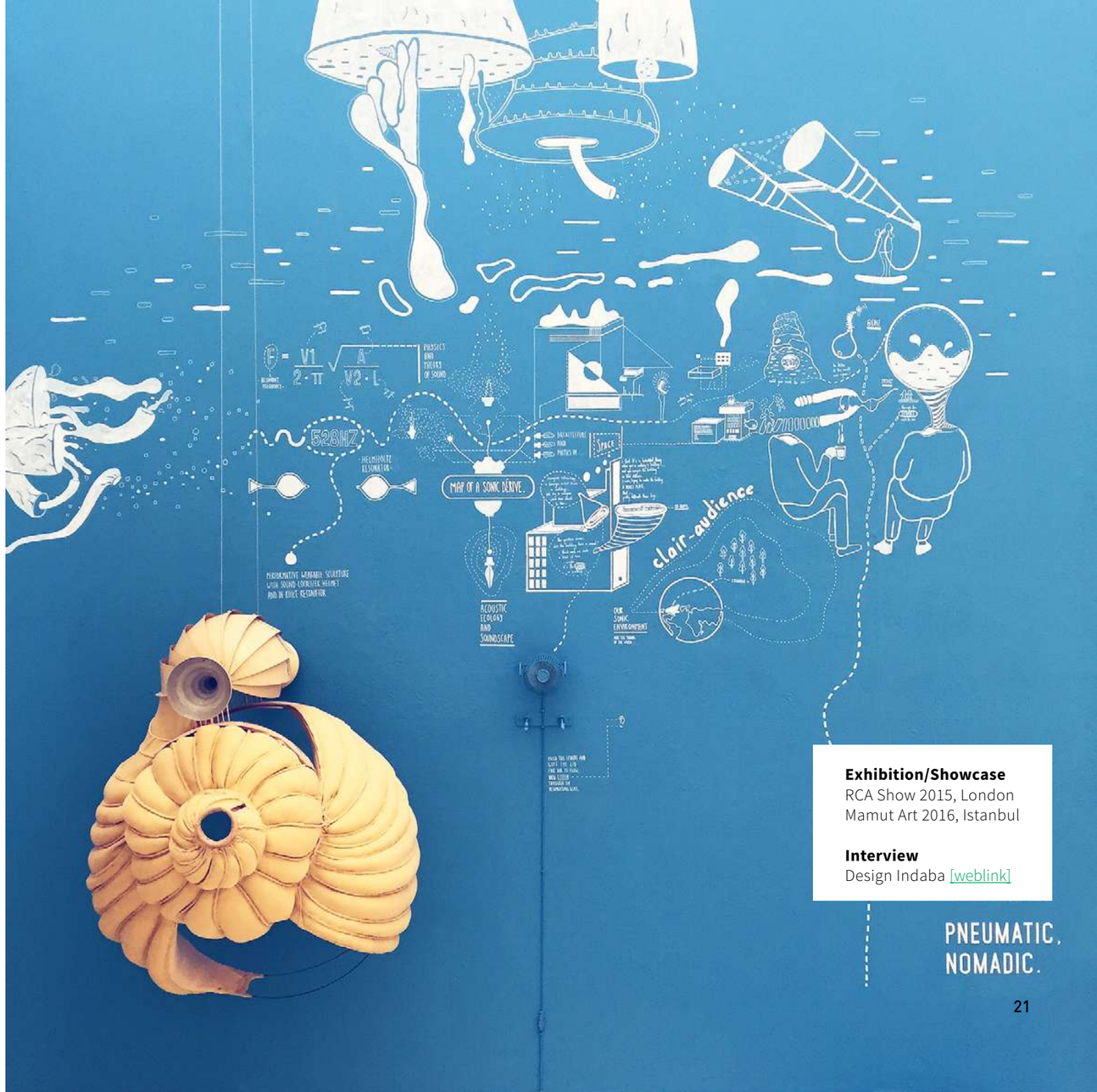
Manufacturing Techniques
3D printing
Ceramic mold casting
Scientific glassblowing
Metalsmithing

Deliverables
Research:
- Soundscape studies *[R. Murray Schafer, The Soundscape: Our Sonic Environment and the Tuning of the World]*
- Physics of sound *[Hermann von Helmholtz]*
- Architecture *[Haus Rucker Co.]*
- Affective Neuroscience *[Jaak Panksepp]*

Wearable & Tangible Artefacts [ceramics, glass, metal]
Exhibition
Project Documentation

Process
Literature Review *[soundscape studies, sensory deprivation, cognition, affect]*
Prototyping:
- Paper prototyping
- Acrylic prototyping
- Scientific glass blowing
- Ceramics & firing techniques

Previsualisation
Manufacturing
RCA Grad'15 Final Show



Exhibition/Showcase
RCA Show 2015, London
Mamut Art 2016, Istanbul

Interview
Design Indaba [weblink]

PNEUMATIC.
NOMADIC.

figure 3.1:
3D-printed helmholtz resonator from wood filament and ceramic mould for fabrication

Brief

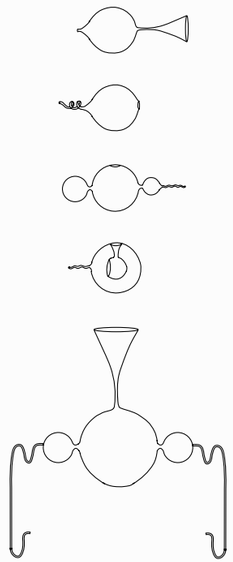
An exploration into finding a critical understanding of how different sounds alter the way we navigate both our physiological and psychological worlds.

Project Description

Pneumatic Nomadic, is a serie of audio sculptures **[figure 3.5]** that disrupt and augment how people perceive and interact with their environment through sound.

The project comprises of a wearable sound dome **[figure 3.2]**, a set of tangible ceramic resonators named 'Sounding Stones' where each piece is calculated and built to amplify a particular frequency ranging between 30-3000hz **[figure 3.3]**, and finally a two-way glass resonator for two people to use in synchrony **[figure 3.4]**.

Each unique resonator amplifies a single frequency in the acoustic soundscape and obscures the rest. The listening devices are intended towards adjusting people's attitudes to the sonic perception by ultimately purifying the chaotic sonic environment. Rather than masking or blocking noise, the artefacts aim to make use of the acoustic properties of various materials to affect, transform and regulate sounds from the soundscape.



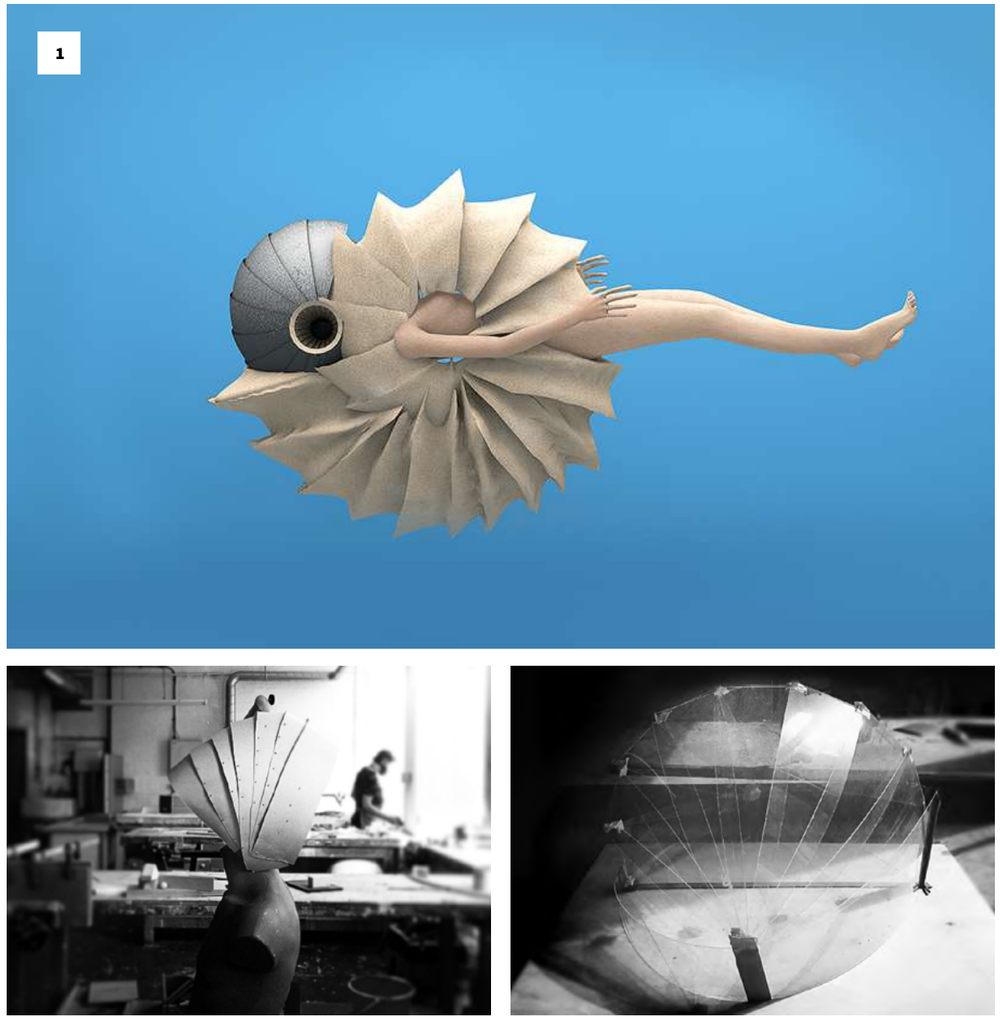


figure 3.2: *3D render of a body in a wearable sensory deprivation tank [top], first paper prototype of the helmet [bottom left], second helmet prototype from heat-bent acrylic [bottom right]*

figure 3.3: *3D render of tangible ceramic resonators [top], color and texture results after different firing techniques without dye [middle], frequency test of a kilned ceramic resonator [bottom]*

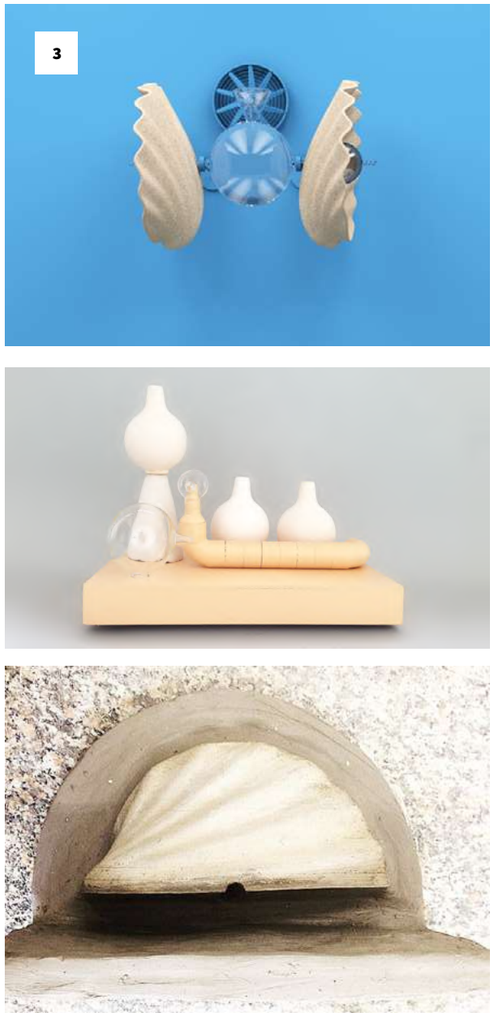
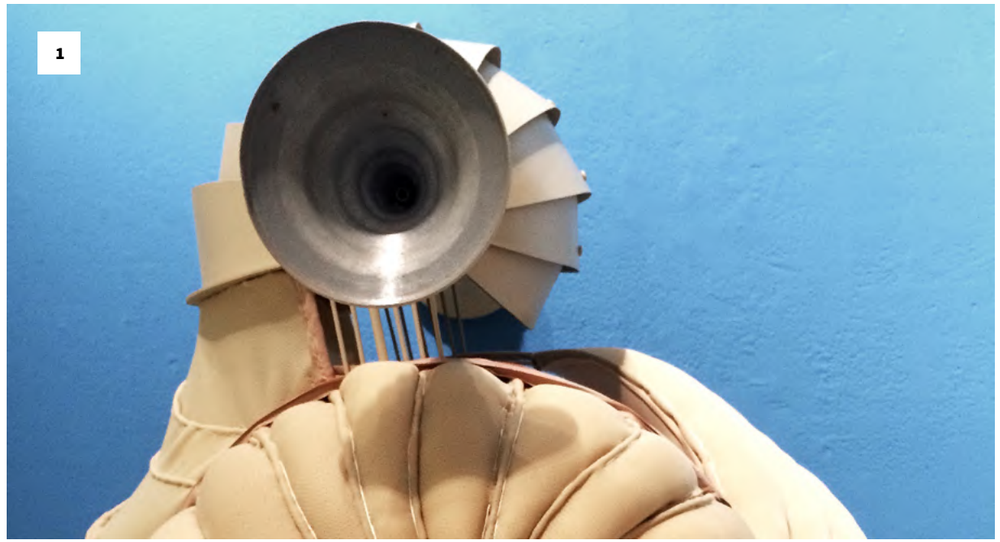


figure 3.4: *3D render of the shared glass resonator [top], bone china & glass resonator prototypes [middle], clay mould for sound reflecting seashell-shaped ceramic parts [bottom]*



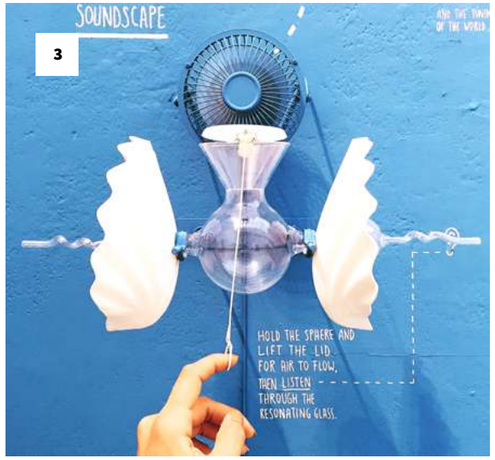


figure 3.5:
Final pieces for display: a wearable piece [1]
ceramic resonators 'Sounding Stones' in various size and forms [2], shared glass resonator [3]

figure 3.6: *Final Show 2015.*
Instances of visitors experiencing sound through touching and embracing the 'Sounding Stones'

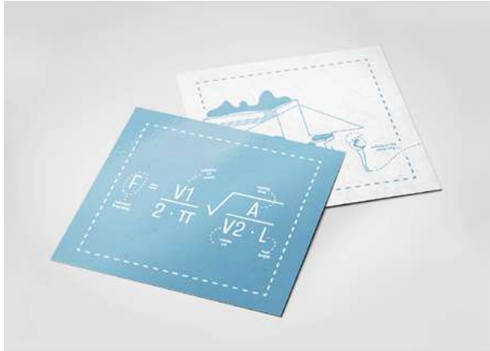


figure 3.7: *performing with the 'Sounding Stones' at the exhibition opening with [top], final show identity design [middle, bottom]*

04 TRACE — A PHASE CHANGING SONIC INTERFACE

human-material interaction tangible UI fluid interface sonification phase-change computer vision multisensory experience

Client
Royal College of Art, WIP Show
2015

Tools

Software
Max
Ableton Live
Granulator [M4L]

Hardware
Hacked [IR] webcam
Fluorescent lights
Speakers

Physical
Sodium Acetate Trihydrate
Water
Petri dish
Clear acrylic bowls

Deliverables
Material & solution tests [exhibited as work in progress]
M4L Patches [GitHub]
Interactive Installation

Process
Material-driven research
- Shape-change / phase-change / reversibility
- Designing with underdeveloped smart materials

Prototyping
Max Granulator tests
RCA WIP Show

Exhibition/Showcase
RCA WIP Show 2015, London

figure 4.1:
Trace: *A tangible fluid interface that translates a phase-change reaction to sound*

Brief

We look upon the world and see its patterns: patterns of light, patterns of dark, patterns of motion, and of stillness. And there are those, which we don't see or perceive as promptly. Those yet unattended patterns can be rather exciting. Each pattern constitutes a form, which has the potential to be decoded, encoded, and transformed into new architectures of information. When information can be extracted, alternative ways of communication can be manifested.

Project Description

This piece invites the audience to create crystals at different forms and scales by gently touching the surface of the transparent liquid inside 3 acrylic domes, embedded in a "black box". **[figure 4.1]** The surface can be touched at any single point, or multiple; which will correspond to single or multiple crystals forming at once. **[figure 4.2]** With this haptic interference, a chemical reaction occurs and white crystals start to form until the full volume of liquid becomes solid. Each reaction in each bowl is aimed to occur at different pace, thus the degree of saturation is prepared respectively. **[figure 4.3]** As the reaction begins, a camera below the domes capture the realtime growth of the crystals, and using that visual data computes an algorithm to map that data on to sound data. By displaying the very visual forms to the ear, the piece seeks to demonstrate a therapeutic, cross-modal expression of "touch".

The haptic feedback prompts a chemical reaction -crystallization- that which modifies the ambient soundscape using the Granulator device in Max 4 Live. **[figure 4.4]** This is an initial "sonification" experiment making use of the M4L toolkit, with an aim to further develop this setup in a fluid sonic instrument. Qualities of the reaction such as reversibility and exothermicity/endothermicity render great potential for other applications.

figure 4.2:
Surface texture detail of sodium acetate trihydrate solution after it's solidified

Supporting Piece [On the wall]

The central kinetic interface is constituted of two identical perforated metal sheets with a static top layer and rotating bottom layer. The rotational acceleration results in a moire effect, showing temporal transitions. Eight petri dishes disposed around the central piece are some work-in-progress results of composite experiments in the lab demonstrating the potential use of this specific material [C2H3NaO2] as a tangible medium. **[figure 4.5]**

figure 4.3: *Sodium acetate trihydrate crystallization tests. Different levels of saturation result in time differences in crystallization process, thus the sound.*

figure 4.4: *Max4Live patch. Using blob detection, various parameters of the crystal growth is mapped on to different parameters on Granulator e.g. grain size, position*

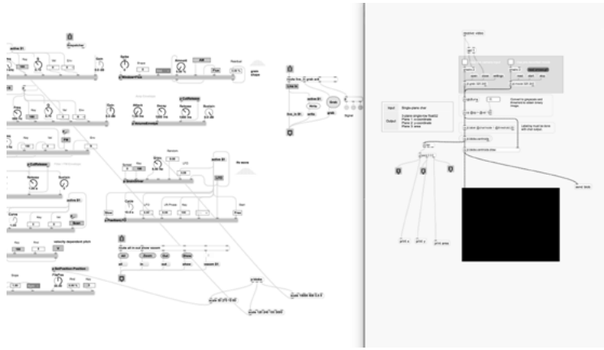
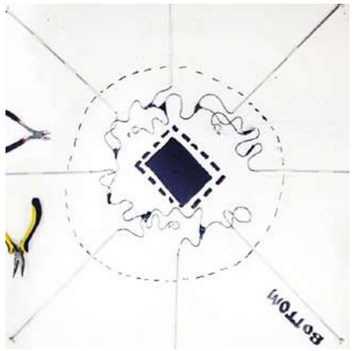
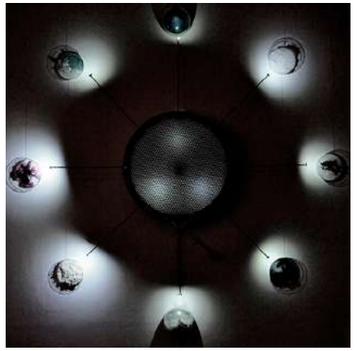
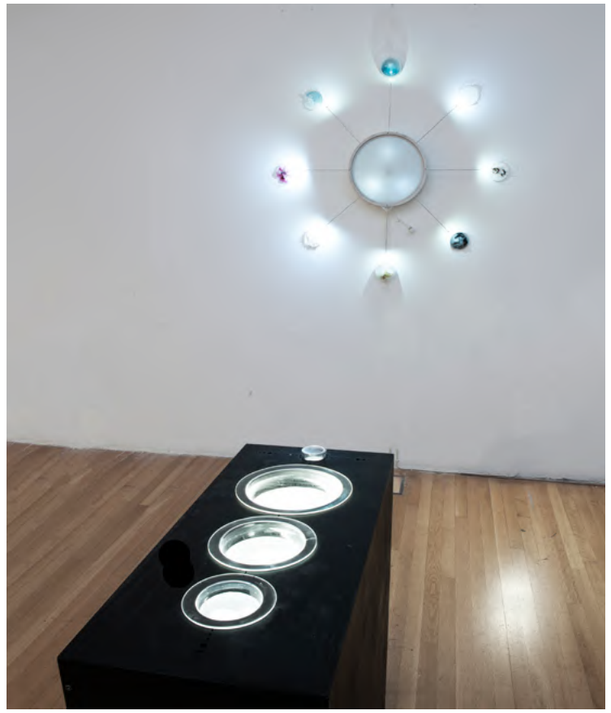


figure 4.5: *Central piece circuit [top left] Composite test results [bottom left] RCA WIP Show'15 setup [right]*







05 | FLOE — KINETIC GLASS

basic machines human-machine interaction material-driven construction glass mechanisms and devices computation oscillation

Client
Queen Elizabeth Prize for Engineering Foundation
2013

Tools

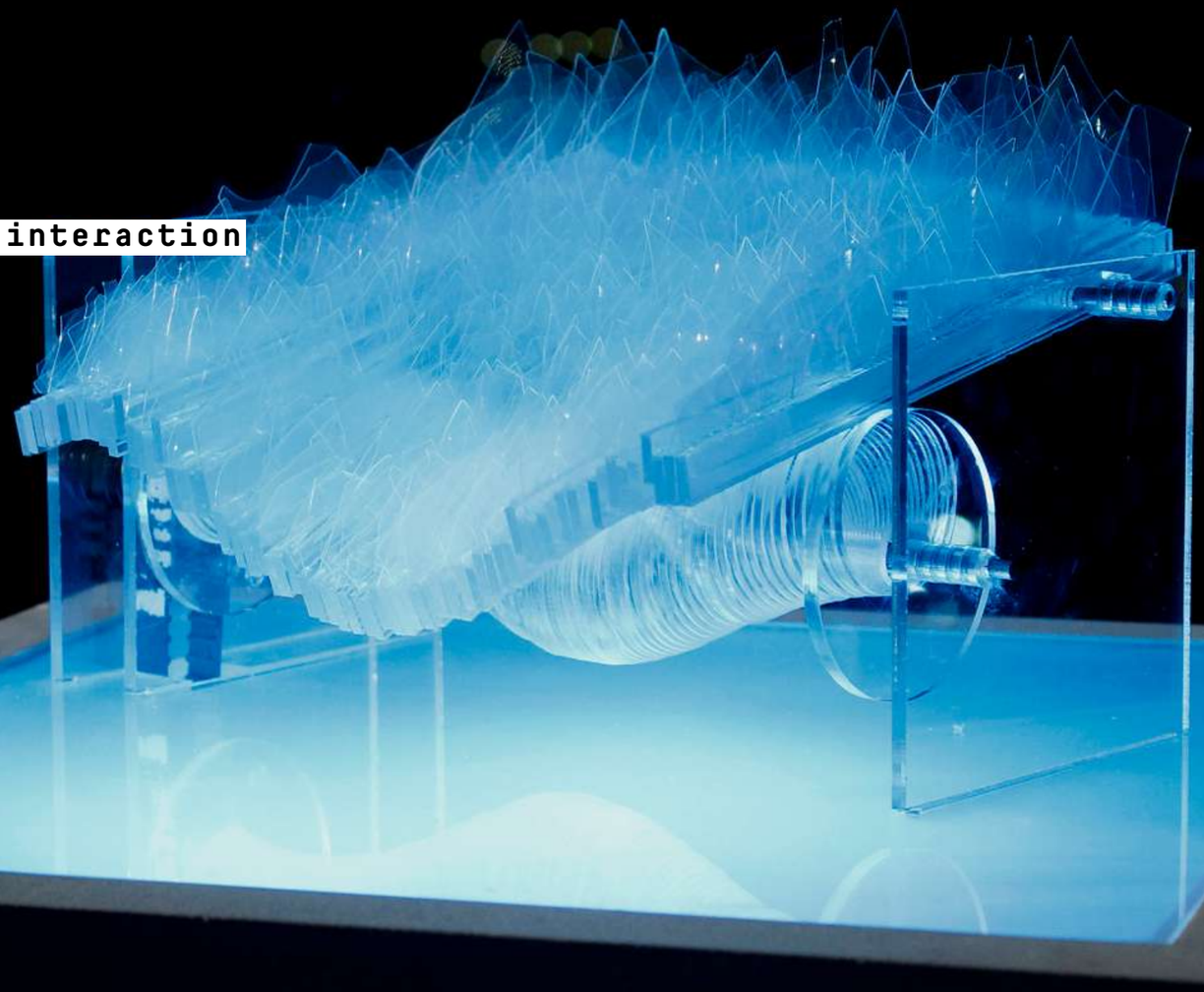
Software
Rhino
Cinema 4D
Ableton Live

Hardware
Arduino Uno
Stepper motor
Proximity Sensor
High-power LED

Physical
Glass
Cast acrylic
Motor belt

Deliverables
2 physical working prototypes [mdf, acrylic]
Final piece [glass]
Exhibition physical material
Documentation

Process
Computation: sinewave oscillation
Prototyping: MDF, Acrylic, Glass
Electronics: LED, sensor, motor
Installation & Experience Design
Final Construction & Exhibition Design
Video Documentation & Press Release



QEPrize for Modern Engineering
Website: engineeringparty.qeprize.org
Full Video: vimeo.com/64962778
QEPrize Video: vimeo.com/73216464

Exhibition/Showcase
Tate Modern 2013, London
ArtFutura 2013, *12 cities*

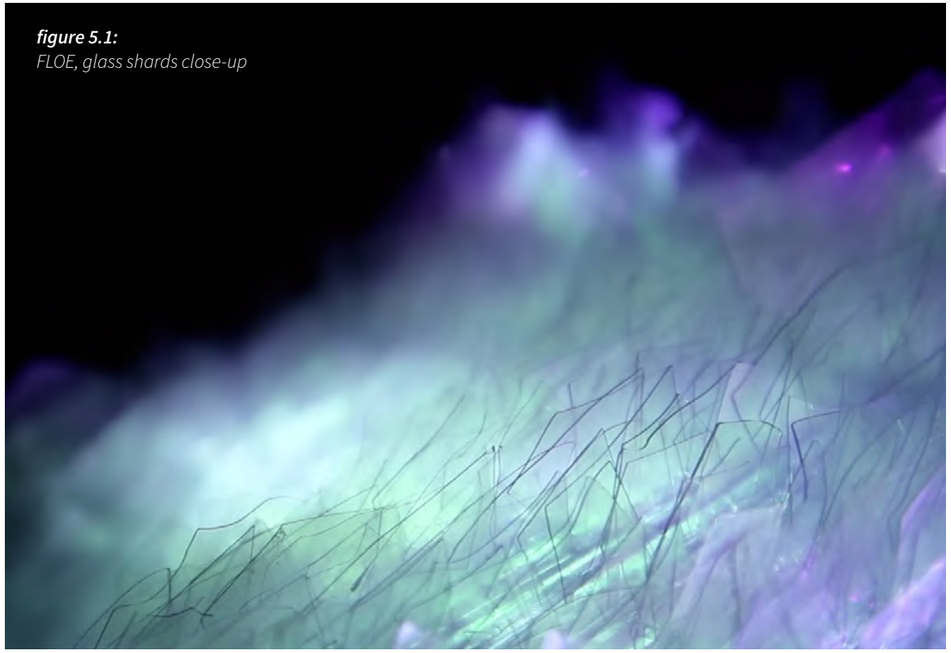


figure 5.1:
FLOE, glass shards close-up

Brief

The QEPrize for Modern Engineering celebrates and promotes engineering achievements from bridges to broadband and from fashion to fusion. As part of that mission the Engineering Party showcased the wonder of modern engineering.

Among 15 selected works, Floe appeared as "more whimsical and poetic, and yet in capturing the beauty and complexity of the world they may have within them the potential to influence and improve life in future." **[figure 5.5]**

Project Description

Why: Floe embodies the shape and movement of ice drifting on the surface of the North Atlantic. In this region shards of ice drift freely along the surface of the water slight changes in tide and intense northern lights bring life to the environment. We looked into motions in nature and their correlation to our emotional attributions as a starting point, and built on the beauty and complexity of the world around us.

***What*:** Floe is an interactive kinetic glass artefact. **[figure 5.1]**

How: Floe uses a stepper motor programmed with Arduino Uno and a proximity sensor to detect the distance of the viewer. The piece stands out as a static and almost a soft and fluffy artefact from distance, until the viewer comes to close proximity that the artefact is then animated and explicitly untouchable.

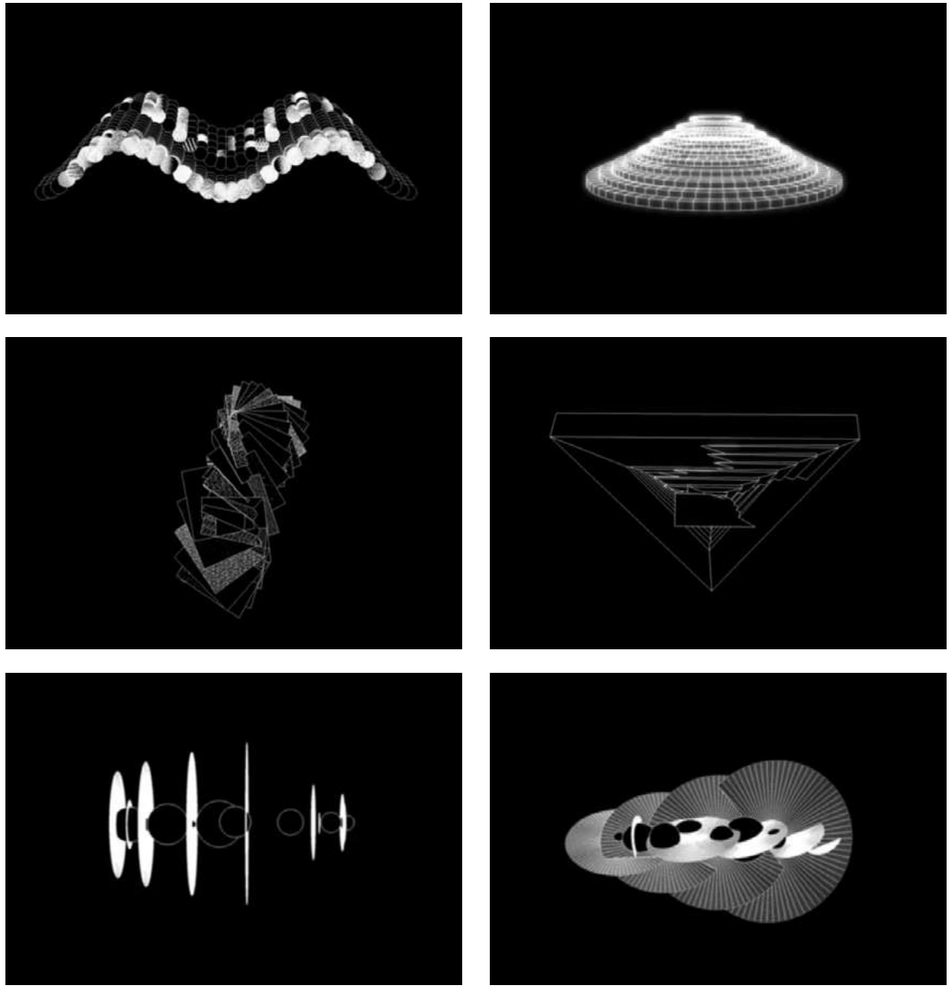


figure 5.2:
Step 1: Sinewave simulations
rendered with Cinema4D Xpresso

figure 5.3:
Step 2: Physical Prototyping
Build no.1: MDF

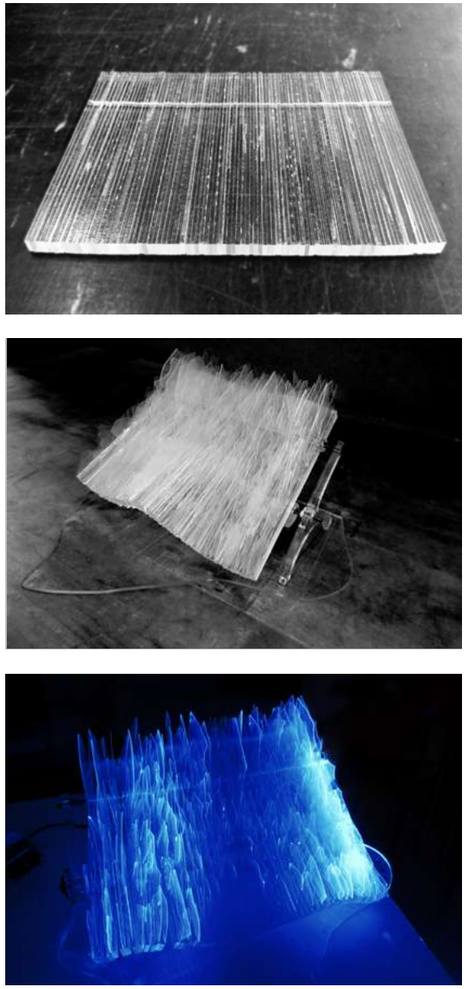


figure 5.4:
Step 3: Material & Light Tests
Build no.2: acrylic & beamlight

figure 5.5:
Step 4: Construction & Exhibition
Final build for the exhibition at Tate Modern.
Glass piece, lightbox, sensors, actuators

06 | SOUND WITH CREATIVE INTENTION

business analysis **design research** **TUI** **tangible interaction** data visualization audio poster book design electronics multisensory experience

Client
Yamaha Design & Royal College of Art
2016

Tools

Software
Adobe Illustrator
Adobe InDesign
Custom Data Analyser

Hardware
Arduino Uno
LED

Physical
Bare Conductive E-Paint
Screen-printing

Deliverables
Interim Report [Format: interactive poster]
Sound Library
Visual Legend & Icon Design
Final Report [Format: digital booklet]

Process
Research: Outline & Methodology
Contextual Review: Surveys
Field Work: Semi-structured Interviews & Transcripts
Data Analysis: Keyword, Multimodal and Discourse
Creative Workshop [Participatory Design]
Visual & Sonic Representations

Brief

Sound with Creative Intention is an R&D project exploring potential business categories for Yamaha which aim to bridge its conventional product and service categories with contemporary sound creation practices. We worked as a group of four designers and researchers from the Royal College of Art in the following steps:

- Mapping a territory in which Yamaha was currently not business-active
- Surveying sound art & design practices, from product design to installations & performances
- Introducing social-scientific and multi-modal research methods
- Sharing insights to help Yamaha shape potential business directions

figure 6.1: *Interim Report.*
research process, audio-visual data mapping

Project Description

Initially we reviewed published materials looking at ways in which creatives [47] describe their approaches in working with sound. Following, we interviewed leading creative sound practitioners from 6 main domains we look at in our research [domestic, broadcast, environments, installation, performance, commentary] to explore the creatives' subjective and objective description of their practice. We analysed the above data to find frequently and uniquely used words for mapping out an overall creative intention and meaning-making framework for Yamaha; extracting sonic approaches and practices, sound typologies, applications and parameters of sound, and sound creation techniques. **[figure 6.1]**

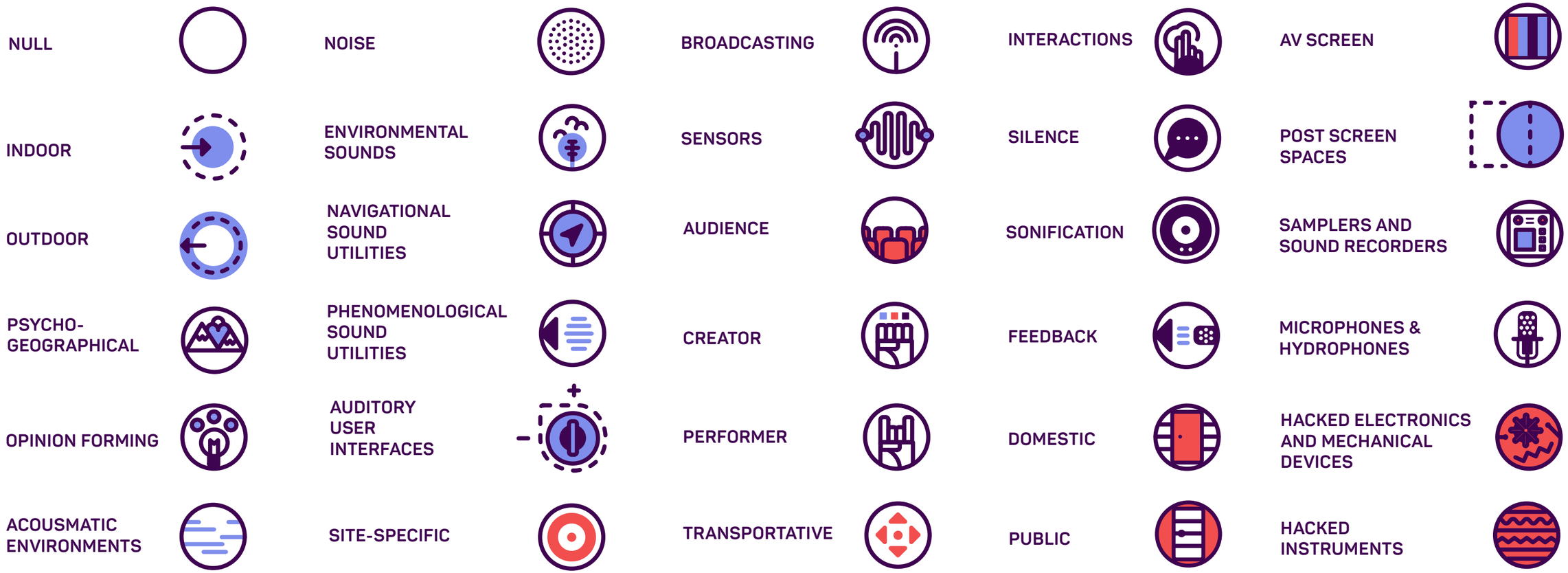


figure 6.2: *Interim Report detail. graphic legend/icon design of key areas*

This research informed two areas of practice-led inquiry; one focused on visualizing our research **[figure 6.2]** and the other sonifying it. For the interim report, we combined the two modalities to develop a visual & sonic representation for communicating key expressive characteristics that could be perceived as to accord with the prospective category of sound with creative intention. **[figure 6.3]**

How it works:

Actions are triggered by touch sensors. For the screen-printed artwork on the poster we used Electric Paint by Bare Conductive. The paint is then connected to the capacitive electrodes of the custom circuit board which trigger sound output when touched.

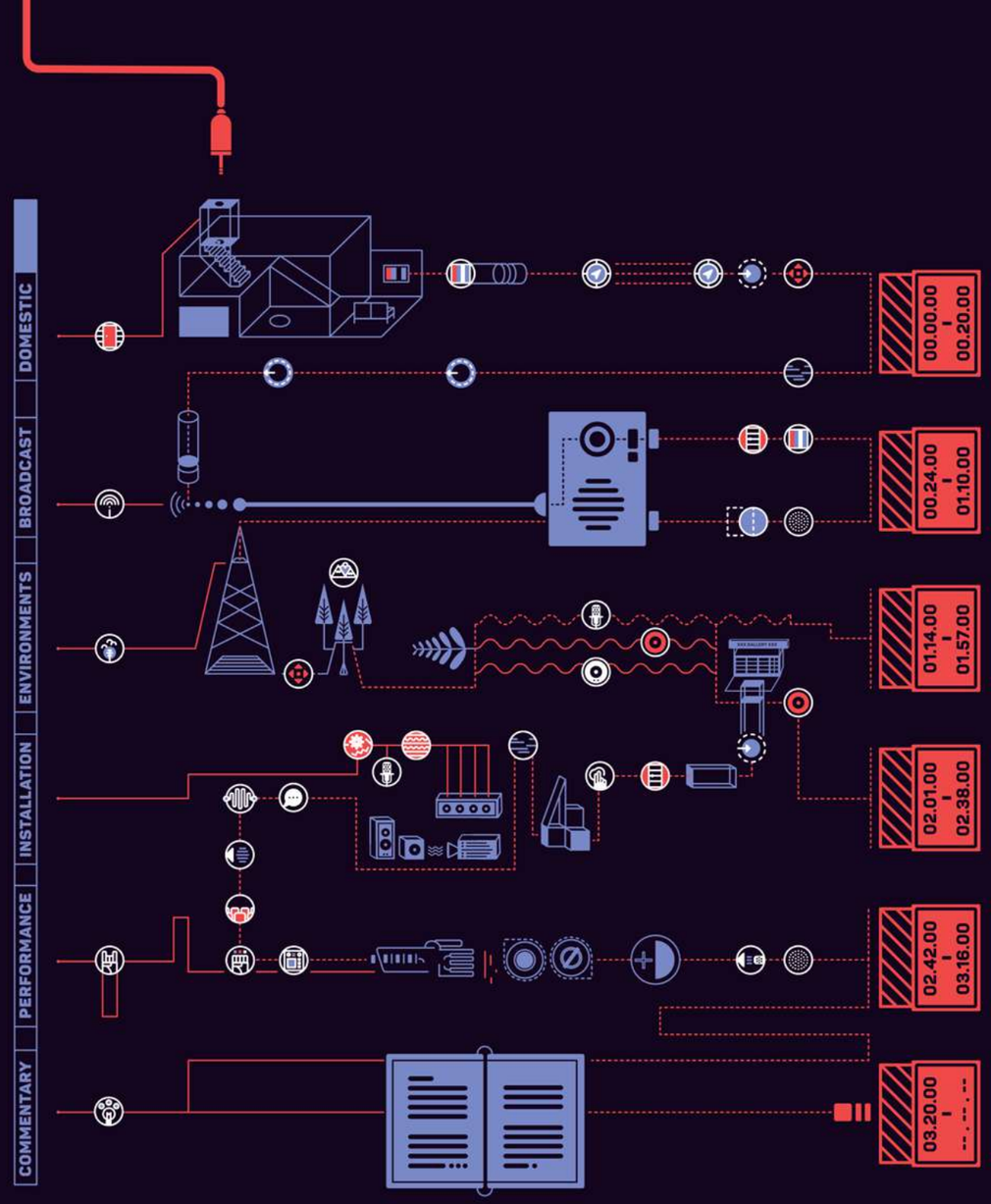
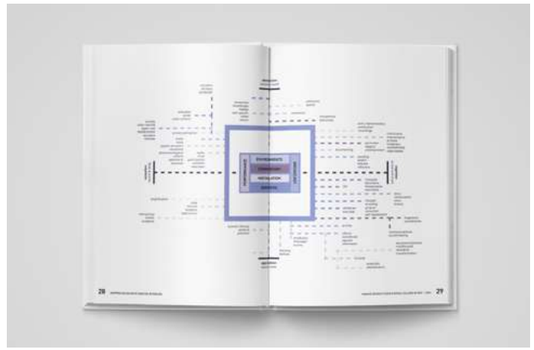
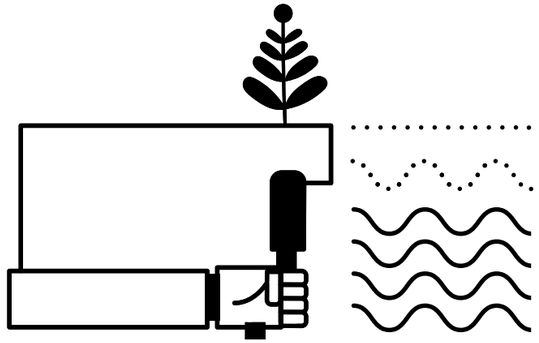


figure 6.3: *Interim Report detail. tangible sonic poster design using Bare Conductive's electric paint & custom designed circuit board*





We also held a one-full-day creative workshop with a total of 10 artists and designers in order to observe creative thinking in action and conceive a series of prototypical products focused on cultural, environmental, social and personal applications.

The final stage of the research focused on the aggregation of the aforementioned components in the form of a digital book **[figure 6.4]** to inform outcomes and observations that relate to the prospective category of *Sound With Creative Intention* as well as an internal guideline for future research within Yamaha.

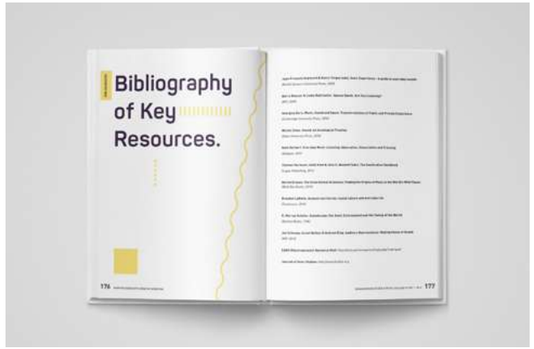


figure 6.4: *Final Report. Snippets from the e-book*

07 | CONNECTOME — EMOTIVE MACHINES

archive **basic machines** **emotion**
human-machine interaction storytelling
manufacturing electronics 3D printing
sensors arduino

Client
Royal College of Art, MA Animation
Dust Project [Year 1 Final Project]
2013

Full Video: vimeo.com/73587580

Tools

Software
Autodesk Maya
Rhino
Processing

Hardware
Arduino Uno
Servo motor
Proximity sensor

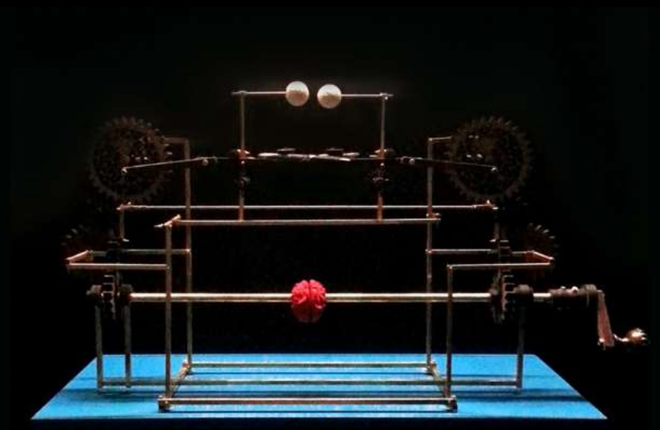
Physical & Manufacturing Techniques
Metalworking
Woodworking
Lasercutting
3D printing
Cast Acrylic

Deliverables
Script
6 basic interactive machines
MA Year 1: Immersive Exhibition

Process

Phase 1
Research & Literature [the museum as archive]
Visit to the Museum of Innocence, Istanbul
Script writing & storytelling
Narration & voice recording
Sketching basic mechanisms in Rhino

Phase 2
Construction [wood, metal & jewelry]
Fabrication
Sensing & Actuation
Coding
Exhibition & Curation



CONNECT-TO-ME

A series of six emotive basic machines. Each machine is designed to non-verbally communicate a semi-fictional narrative of the maker's own lived experience of intangible moments.

—

"The images that words generate in our minds are one thing; the memory of an old object used once upon a time is another. But imagination and memory have a strong affinity and this is the basis of the affinity between the novel and the museum. – The Innocence of Objects"
Orhan Pamuk

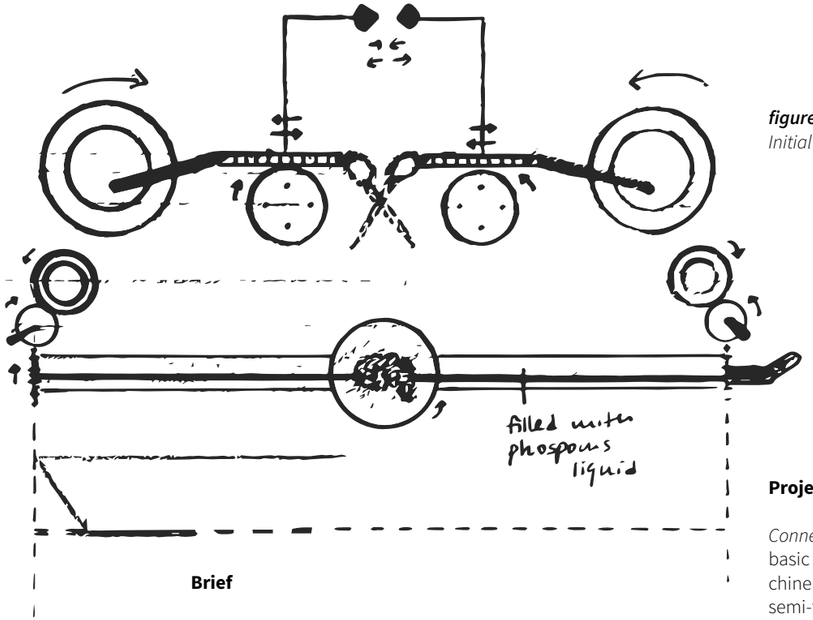


figure 7.1: Part 2_Forgetting.
Initial sketch of the mechanism

Brief

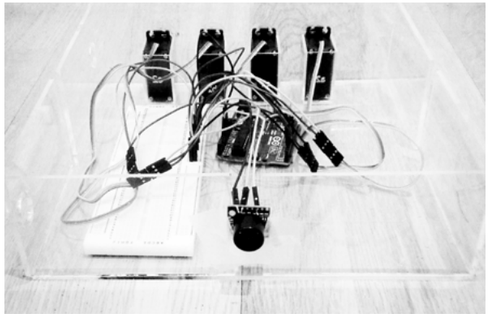
The Archive now has the widest range of potential meanings attached to it, than at any point since the inauguration of European and North American state archives in the early nineteenth century. Those who make their way through Archive Fever will discover how very much the modern allure of the archive is to do with a Freudian romance, of finding all the lost things and names, whatever they may be: things gone astray, mislaid, squandered, wasted and the tragedy of believing that an archive contains everything there is to know or that might be knowable.

And behind all this contemporary interest in archives, probably lies Foucault's poetics of these spaces and regimes: His suggestion of their magical quality. The magic is the way in which archives reflect, show us quite simply what all those in the foreground are looking at.

Project Description

Connectome is a series of six emotive basic machines. Each emotive machine is designed to tell non-verbally a semi-fictional story of the maker's own lived experience of intangible moments.

The story begins with the protagonist's *Departure* and follows with *Missing*, *Paranoia* **[figure 7.2]**, *Illumination, Forgetting* **[figure 7.3]**, and *Weightlessness*. Each machine works in a predetermined repetitive sequence similar to that of an automaton. The human-machine interactions are designed for the attendee to viscerally connect to a memory from an own lived experience. The machines have been curated following the story, including a small excerpt from the script.



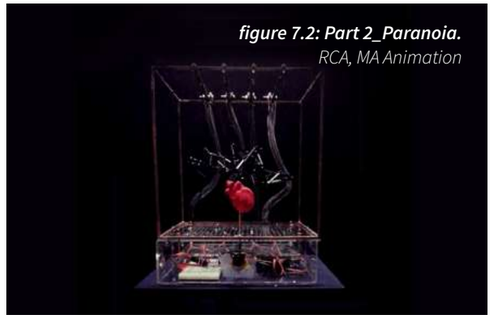


figure 7.2: Part 2_Paranoia.
RCA, MA Animation

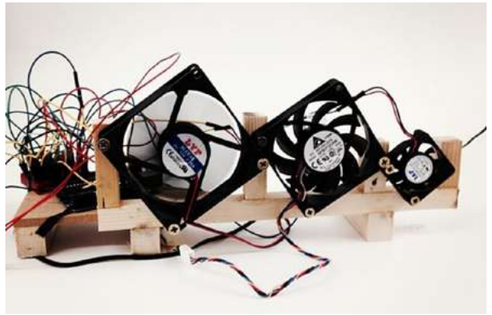


figure 7.3: Part 4_Forgetting.
Royal College of Art, MA Animation
Final exhibition 2013

08 | MICROFIELDS — A SERIOUS CLIMATE GAME

system modelling **speculative design** **computer graphics** **computer vision** **serious games** **ecology** **sustainability** **climate change** **city simulation**

Client
amber'11 Art and Technology Festival
BA Graduation Project
2011

Exhibition/Showcase
amberFest'11: Next Ecology
Full Video: vimeo.com/34227763

Tools

Software
openFrameworks
Autodesk Maya
V-Ray
Adobe After Effects

Hardware
Arduino
IR Laser
Sony PS Eye

Physical
Recycled electronics
Plywood
Silk fabric

Deliverables
Research [City of Air, Lebbeus Woods]
Brief & Treatment
Storyboard & Style Images
Full CG Movie
BA Final Jury Exhibition
amber'11 Exhibition
PechaKucha Presentation

Process
Research & Literature [ecology]
Script & storyboard
Visual style images
Image processing [blob detection]
Hardware hacking
Installation setup & camera tests
Final Installation

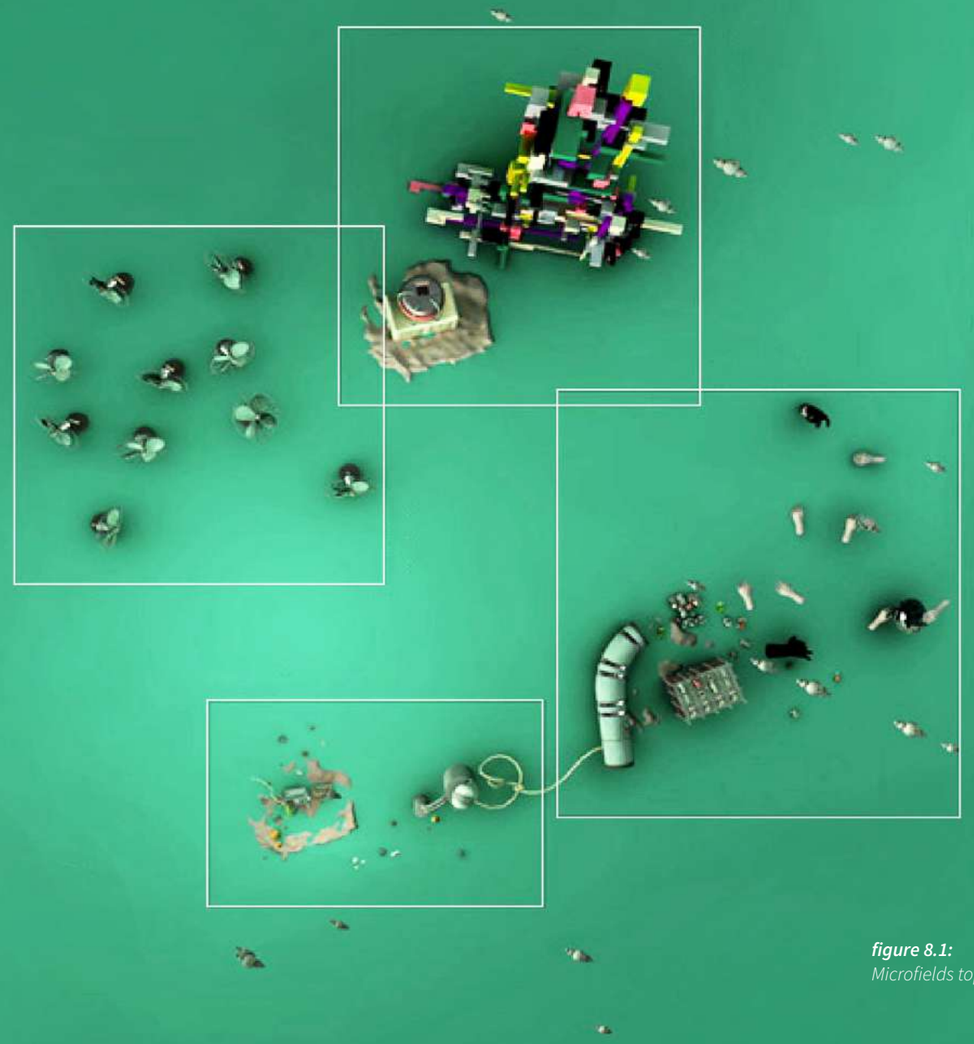


figure 8.1:
Microfields top view 3D render

Brief

Why: [Next Ecology]

New technologies are far more important than ever not only as a tool but primarily as a framework. By means of these technologies we have changed the world in which we live: Mother nature, our ecologies, our bodies... We have created a novel and global habitat, which is different from where we first began. We have changed our environments and ourselves, but we have not yet fully understood what this change encompasses nor have we acknowledged the overall results and effects.

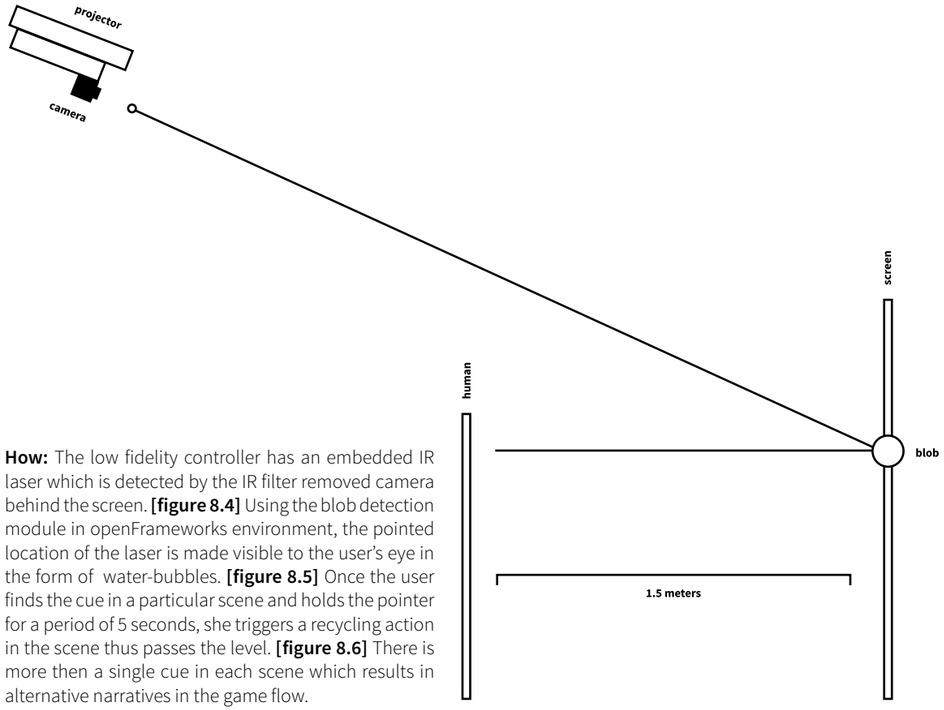
Today we need to reconsider all the paradigms we rely on: Nature, the body, economics, politics, environments and communication to name a few. In sum, we need a new framework. Ecology entails all relationships of the natural and the artificial environments of mankind. We believe that we need a new holistic ecology that internalizes the transformative power and possibilities of technology and covers all aspects of possible relations among the living and non-living surroundings; from politics to love, from economics to media. We name this framework *Next Ecology*.

figure 8.2:
A low-tech controller made out of recycled electronics

Project Description

What: *Microfields* is a design fiction in a game-like format, asking its user to engage using a controller made out of recycled electronics **[figure 8.2]** It subjects ecological sustainability and the organization of energy in a speculative city system very much inspired by *Lebbeus Wood's City of Air*. The piece is envisioned to present an entertaining yet thoughtful experience to the audience through explicitly drawing attention to contemporary socio-ecological issues such as climate change and sustainability.

figure 8.3:
Microfields at amber'11. A visitor using the low-tech controller made out of recycled electronics



How: The low fidelity controller has an embedded IR laser which is detected by the IR filter removed camera behind the screen. **[figure 8.4]** Using the blob detection module in openFrameworks environment, the pointed location of the laser is made visible to the user's eye in the form of water-bubbles. **[figure 8.5]** Once the user finds the cue in a particular scene and holds the pointer for a period of 5 seconds, she triggers a recycling action in the scene thus passes the level. **[figure 8.6]** There is more then a single cue in each scene which results in alternative narratives in the game flow.

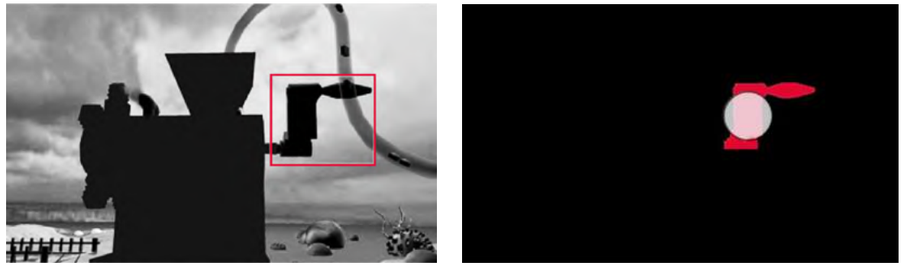


figure 8.4: openFrameworks interface
Top layer that is visible to the user [left]
invisible layer using color code info [right]

figure 8.5:
openFrameworks blob detection in the graphic form of water-bubbles

figure 8.6:
The red loader image appears once a cue is detected by the user

figure 8.7:
Various scenes from the movie. From left to right:
City of Earty: Oil Factory, The Glass House, Windmills [top row]
City of Air: Air Residence, Air Hospital, Air City [bottom row]

09 | SONIC SEESAW — PLAYFUL AUDIO FURNITURE

sound **construction** **playful interaction** **tangible UI** physical computing movement synchrony oscillation sensors electronics

Client
Sabanci University, Interaction Design BA Course
Final Exhibition
2011

Tools

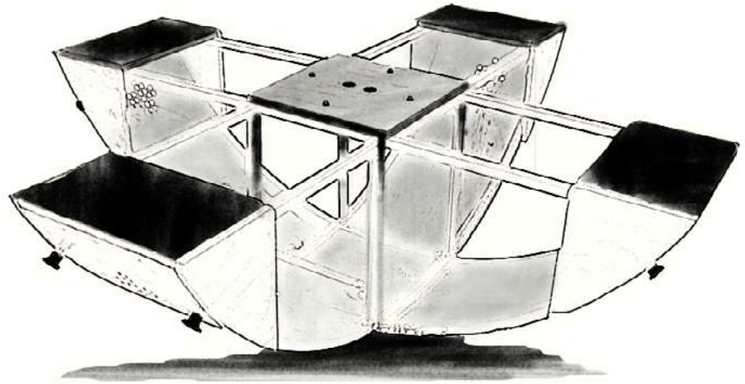
Software
AutoCAD
Max/MSP
Processing

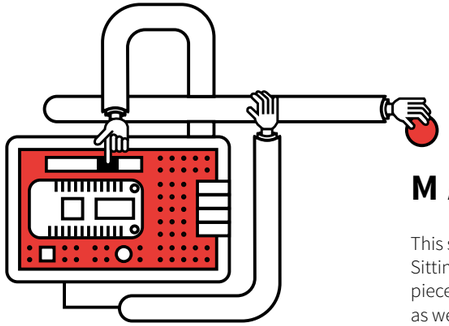
Physical
Plywood
Square steel bar
Steel sheets

Hardware
PicoBoard
Buttons & LEDs
Speakers
Accelerometer

Deliverables
Research & Treatment
Physical Interactive Furniture
Final Presentation

Process
Research & Ideation
Prototyping [MDF]
Electronics & Sensor testing
Coding
Sound library design
Final construction





MAKE YOUR OWN BEATS

This sonic furniture is designed to work with 2-4 people playing at once. Sitting on the bench each player contributes to the making of a musical piece selecting a sample from their unique sound librariy via a red button, as well as rocking in two different axis in order to add random sound FX.

Brief

The Interaction Design final course brief was to design and build, in a group, an interactive playful experience using cross-modal & multisensory interactions.

As a group, we approached this task by designing an interactive sonic playground experience. Our physical build had to be robust enough to carry four people at once while efficient in weight to be able to rock. **[figure 9.1]**

Project Description

How: Each player has a unique sound library including 20 custom made samples, each controlling a different channel [instrument]. Once the samples are selected by each player using the red buttons in front of them **[figure 9.3]** the sound mixing prompts with the initiation of the rocking movement. The rocking of the Sonic Seesaw in two axis is monitored using four accelerometers all which input their values with the MAX patch **[figure 9.2]** to get different sound effect outputs.

Role: Ideation, interface sketching, product design in CAD, sampling half of the custom made sounds, soldering the hardware, coding in Processing, woodworking.

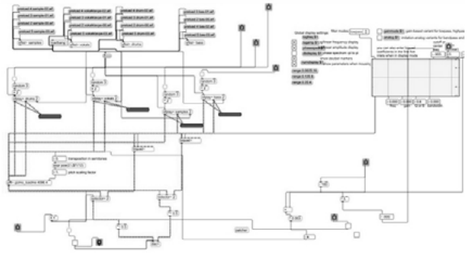


figure 9.2:
Communicating Max/MSP to Processing via OSC

figure 9.1:
Sonic Seesaw: *Final interactive construction made out of plywood and steel*

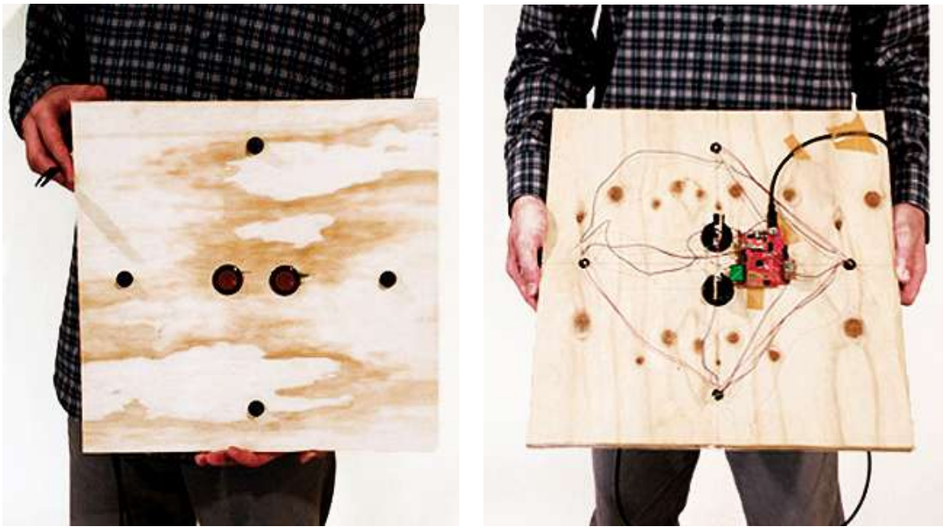


figure 9.3:
Central tangible interface. Hardwiring PicoBoard with buttons & LEDs. Front [left] and back [right]

10 | DELETE — [DATA] PRIVACY OF A ROOM

responsive environments **construction** **human-computer interaction** **TUI** **memory** **interactive sculpture** **audio-visual** **video mapping** **experience** **sensors**

Client
TodaysArt Festival & TRNL 400
"Commons Tense" by amberPlatform
2012

Tools
Software
Autodesk Maya & VRay
Blender
VVVV

Hardware
Arduino Mega
Pressure Sensor [FSR]
Character LCD
Projector

Physical & Manufacturing Techniques
Styrofoam
Polyurea Coating
Yarn
Stainless Steel
Metal Working

Deliverables
Project Treatment
Pre-visualisations [EU project catalogue]
Interactive Installation [TodaysArt'12]
PechaKucha

Process
Research & Literature
Physical construction
Sensors & Interaction
Video mapping
Exhibition & Curation

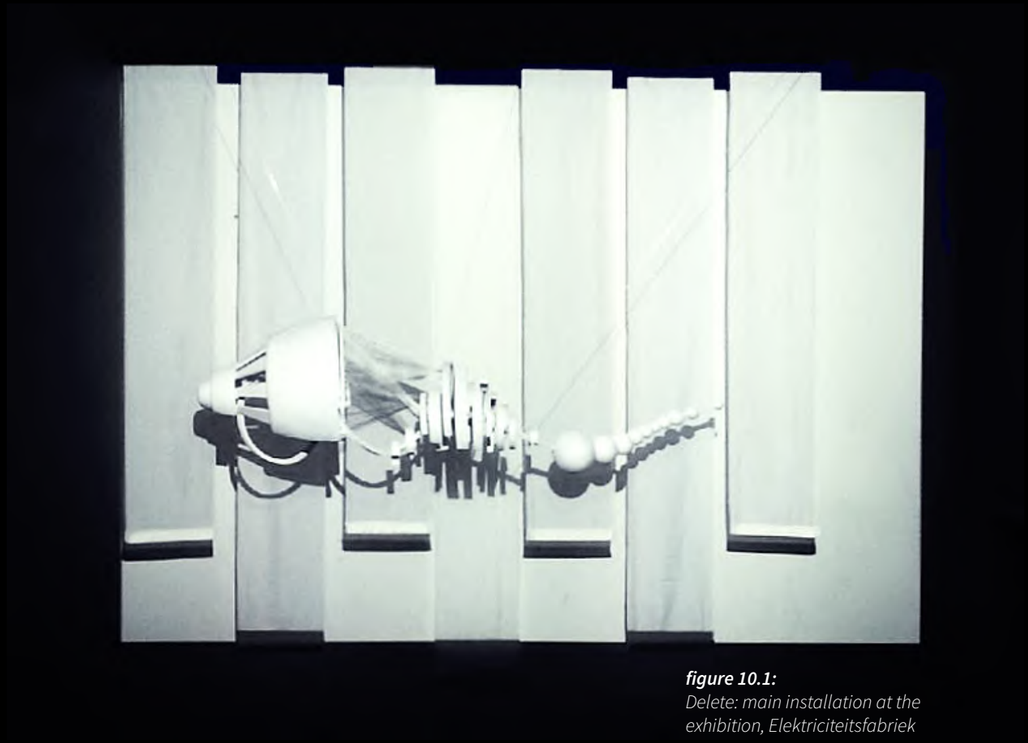


figure 10.1:
Delete: main installation at the exhibition, Elektriciteitsfabriek

Exhibition/Showcase
TodaysArt 2012, The Hague

Brief

"Commons Tense"
As part of the 'amber Arts and Technology Festival and Conference', to be held in Istanbul in Nov'12, themed 'Paratactic Commons', its follow-up 'Commons Tense' uses the urgent need to reclaim the public ownership of the commons.

'Paratactic Commons' is an exciting and adventurous theme which reflects on urgent and actual topics in our society. Own initiatives in public space, co-creation, and redefining ownership of common objects and spaces are topics that are vital to harnessing and further developing the creative potential of cities. These tools respond to both the needs derived from the ambitions of policy makers and municipalities, as well as the needs derived from urges towards societal transitions.

The exhibition has taken place within the framework of TRNL400 during TodaysArt Festival 2012, celebrating diplomatic relations between Turkey and the Netherlands.

Project Description

Why: Could the digital commons be an alternative platform to launch a political thought whose main aim is sharing, transparency, and freedom to access information? Could humans share their common resources rather than exploit them? What paratactic strategies can digital commons consist of?

What: Most of what is commonly created today are stored digitally and also spread using digital tools and networks[1] Delete is a spatial design questioning the expiry date and ownership of our digitally stored data. Should this data be forgotten? **[figure 10.1]**

How: The room has its own memory & temporality while it welcomes visitors while monitoring their presence in the room using a pressure sensor that is disguised under the carpet at the entrance door. The numbers on the character LCD screen placed at the entrance increase as visitors enter and decrease once they leave the room. Deleting all the archived data is demonstrated on the central sculpture by physically deleting 1 pixel on the mapped image at a time when someone leaves the room. The room became pitch black with all pixels deleted at the end of the two-week exhibition. **[figure 10.3]**

Reference[s]

1. Viktor M.Schönberger. The Virtue of Forgetting in the Digital Age. Princeton University Press. 2009

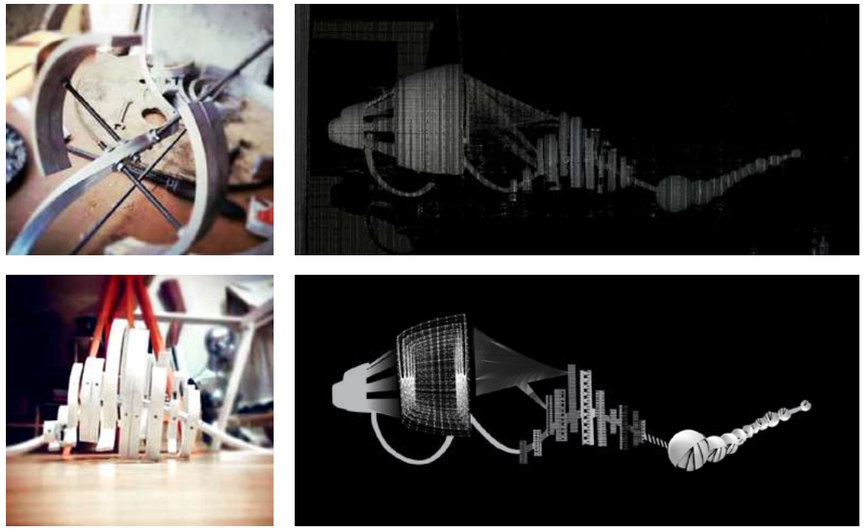


figure 10.2:
Construction process

figure 10.3
3D scanning & video mapping

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