

SOPRO (The Blow)

Milton Terumitsu Sogabe, Fernando Fogliano, Fabio Oliveira Nunes, Soraya Braz, Carolina Peres, Cleber Gazana (cAt team).

Universidade Estadual Paulista – UNESP Instituto de Artes – cAt team
São Paulo, Brasil
miltonsogabe@gmail.com

Abstract

This paper talks about “Sopro” (The Blow), an interactive work energized by the public through the force created by their blowing on a propeller. This art proposal is based on the use of a simple technological system, a poetics of the blow and on primordial scientific principles. The system present in the work aligns itself with current energy and sustainability issues, inserting them in the context of art-technology, and post-digital thinking.

Keywords

Art-Technology, Energy, Blow, Sustainability, Post-Digital.

Introduction

This paper talks about “Sopro” (The Blow), a work carried out by the cAt (science/Art/technology) Research Group of the Arts Institute of the Universidade Estadual Paulista (São Paulo State University) - UNESP. We have been working with digital technology in art for long time, and in this work we make use of the thoughts present in the processes of creation with the digital, without employing digital technology. Questions regarding interactivity, collaboration, sustainability, post-digital and also a systemic vision, are present in the discussion process that generated “The Blow”.



Figure 1 The Blow (2014). cAt Research Group

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Energy and Blowing

One of the key issues facing us today pertains to our energy sources. Works in the art-technology field can in a way incorporate this discussion and concern. In this regard, works that require energy can seek alternative energy sources as a more ecological manifestation (proposition). The work, “Sopro”, emerges in this context, searching for poetics in technology itself and its relation with the human being.

In nature, the force of the winds is responsible for several modifications in the environment, such as the act of transforming the shapes of rocks by erosion, the movement of dunes in coastal areas and erosion processes. The processes whose geological agent is wind are called aeolian processes. The climate and its variations are directly related to the movement of the winds, which affect temperature and produce rainfall. These, in turn, transform nature and culture in cycles, like a living system.

Given its strength, man has long sought to turn wind into useful energy, through windmills and sails in boats, and more recently through wind turbines that produce electricity. The so-called wind energy is considered an alternative energy source to fossil fuels and other forms that have an impact on the environment, being a form of “clean energy”.

In common knowledge, the act of blowing is recurrently associated with the genesis of life. Different cultures in their cosmogonies, on explaining the emergence of man, involve a divine breath as an action capable of imparting life to what was formerly inert. In the well-known biblical passage from the book of Genesis, God blew the breath of life into Adam, the first man. We find a similar belief in Tupi-Guarani mythology, an important indigenous culture in South America. In their account, Tupã, the supreme divinity, would have breathed life into the human forms he modelled in clay during a ceremony. In Yoruba mythology from Africa, Obatalá,

the direct son of Olodumare, creator of the universe, was sent to Earth, which was composed of water, and created plants, animals and man: “*It is an undisputed fact that in the end Obatalá was given the task of creating the physical characteristics of the bodies that should house the planet’s human inhabitants. With clay and water, Obatalá made the bodies, waiting for Olodumare to complement the task with the emi - the breath of life that would animate them*” (HASS, 2011).

In the poetic context, we find several references to the act of blowing. Oscar Niemeyer, a Brazilian architect who lived to the age of 105, uttered a famous phrase about the fugacity of life through the metaphor of the breath, “*Life is one breath, one minute. We are born, we die*”. (MURRAY, 2012). The last book by Clarice Lispector, published one year after her death, was “*A breath of life - Pulsations*”. In it several phrases with the word breath can be found, such as: “*I look for the breath of the word that gives life to whispers*” (LISPECTOR, 1978).

Art-Technology

In interactive art the public is asked to participate in the work through a variety of means. The body is present not only by looking, but in its totality, seeing, feeling, thinking, and acting in a simultaneous and continuous process.

The exercise of blowing is a recurrent practice of interaction in interactive works (BORN, 2014). One of the bestknown examples is the installation “*Les Pissenlits*” (2006) by Edmond Couchot and Michel Bret. It is based on a stimulus/response system which invites visitors to blow on a microphone just like they would blow on a dandelion. This action by the public causes the image of a dandelion projected on a wall to behave as if it were real, since it disintegrates and the seeds are carried away by the wind. About the work, the authors comment: “*Our idea was to recreate a gesture, as old as the hills. When we see these works, we want to rediscover the natural gesture of blowing. In this case, blowing on an image for the first time in history*”. (COUCHOT, 2014).

Another work that also involves the gesture of blowing is the work “*Blow 4*” by the group Super Uber:

“*This work basically consists of an end-on projection on a white cube, where several fragments seem to float at random across the plane space of the projection. The particulate system remains in its continuous and random motions until at least one of the interactors blows into the soap bubble ring-shaped device (which is naturally*

associated with blowing), which captures the blow through a microphone” (SUPERUBER, 2011).

There is also “*Breathing*” by Guto Nóbrega, a work created based on the communication between a natural organism (plant) and an artificial system, which also allows blowing to be one of the forms of interaction with the work. This work also involves blowing as one of the forms of interaction. At the centre of this system is a Devil’s Ivy (*Epipremnum pinnatum*) plant whose electrophysiological signals are monitored by an analog-digital device in order to control a robotic interface composed of a mechanical structure, fibre optic and light-emitting diodes (NÓBREGA, 2008). If the interactor blows gently in the plant’s direction, this stimulus can be perceived by the system, possibly generating some response.

The Piece “The Blow”

Based on these samples, in 2014, the cAt group (science/Art/technology) developed the art project titled “*Sopro*” (The Blow). It is a system that involves interactors participating in the work by blowing. Blowing is the “*energy source*” for the activation of the work. Thus, the question of energy in “*The Blow*” is present in several aspects.



Figure 2 Outline of the work The Blow. cAt Research Group

The work takes place in the context of the environmental crisis, especially with regard to the emergence of alternative energies. The blow, in this sense, refers to wind energy. Energy begins by being produced by the human body itself, which through breathing produces

the blow. That action, in turn, provokes a movement in the propeller present in the artwork that, through this kinetics, turns an engine that is transformed into an electric energy generator. The energy activates a vibrating motor that produces a movement in a sphere floating in water, moving it and giving life to the artwork. There is a lamp above, and the projected shadows of the spheres in the water facilitate the visualization of their movement.

From the point of view of its creation, the possibility of showing the technology in the structure was explored and achieved, in order to construct the poetics, allowing the interactor to understand the result of his/her action in the process while at the same time allowing the technological issues to be discussed in an environmental context. Some of the elements involved in the work are:

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Water: Water is present in the work because it is an element that is always related to life. The movement of the spheres, caused by the motor's vibration, produces a movement in the water, showing a sign of life. On the other hand, the difficulty encountered when trying to capture the vibrator's subtle movement, found in water both a technical and a poetic solution.



Figure 3 Detail of the piece *The Blow*, with vibrators inside the balls. cAt Research Group

Sphere: In this sense, the sphere is the form adopted in the work as a reference to cells, which also represent life and energy.

The artwork's structure is made up of a system of spheres that are interconnected as in a fractal structure. Energy is present in each sphere, and at the same time it is all of them that produce the work's energy. The main sphere measures 0.5 m in diameter and receives water in one of its hemispheres. On the watery surface are located the three smaller spheres, with a 5 cm diameter. These contain the vibrators, which move when the public interacts.

The visitor, in turn, interacts by blowing on a propeller also placed within an acrylic sphere measuring 15 cm in diameter, and in total there are three propellers in three separate spheres.

Collective: Although it is possible for a single powerful blow to cause the movement of the sphere-cell in the water, it is the simultaneous collective blow on the three propellers that will allow the movement of the water to be perceived more easily. The three spheres with the propellers point to collective participation, in an effort to unite energies to achieve better efficiency.

Technology: The use of a seemingly simple technological system, consisting of propellers, motors taken from CD and DVD players, and a vibrating motor such as those used in reused cell phones, are presented in an intentionally visible manner so that the public realizes the simplicity with which blowing energizes the vibrating motor, causing the sphere that contains it to move. Each propeller is composed of five blades produced in 3D printing (printed at the MemoLab - Digital Fabrication Laboratory of the Memorial of Latin America, in São Paulo), specially designed for the work.



Figure 4 Person blowing on the propeller of the work *The Blow*. cAt Research Group

Conclusion

In this paper, we described and reflected on the work “Sopro” (The Blow), where the relationship between theory, research and artistic creation is present in the academic context. In its production, the work points to some directions. By opting to work with electric energy generated by blowing, a significant part of the artwork’s construction is aimed at dealing with the limited energy produced by this action. In many moments, the aim is to optimize the slightest electric current arising from each interaction. Managing this scarcity is important not only to maintain the poetic essence of a “breath of life,” to categorically vivify the system, but also because it serves as a stimulus to manage necessarily with just the minimum, as a metaphor of the energy concerns of the present times.

The option to make use of recycled and apparently simple technological devices arises from the perception that we can take digital technologies a step further. This is due to the fact that they have already been incorporated and trivialised in our daily life, with the presence of new generations born in digital times and natives to this context. We believe that although the work does not use digital technology directly, all the thinking that surrounds its conception is based on the incorporation of digital processes and on the discussions that are emerging after the boom of this technology, making us pay attention to environmental and sustainability issues.

In Art-Technology, most of the works use electrical energy, and in the current context we would argue that there is a need for these works to include the concern with the energy issue. By dispensing with electrical energy and using wind energy instead through the human blow, the poetics of the work is built with the very technology used and presents this environmental concern. In this process, through research, we discovered that the work “The Blow” fits within the context of discussions about the Post-Digital. The perception that a digital phase in art has passed and that artists are seeking other proposals, but with a way of thinking acquired in this previous stage.

This perception is present in the work “The Blow”, which identifies itself with several other works that seem to converge, materializing the theoretical post-digital assumptions.

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Authors' Biographies

The cAt team – science / Art / technology – Art Institute – São Paulo State University (UNESP) / National Counsel of Technological and Scientific Development (CNPq), created in 2009, has the characteristics of experimentation, reflection and dissemination of research from the connection between science, art and technology.

Structured with interdisciplinary training profile, given the training and experience of its members, striving for the development of common projects and respect for individual projects and research.

The interests surveyed by the group have the following keywords as points for experimentation, production and dissemination of knowledge, which are: Physical Computing, Image, Materiality, Interactivity and Multimedia.

The team consists of Milton Sogabe (doctor), Fernando Fogliano (doctor), Fabio de Oliveira Nunes (doctor), Soraya Bras (master), Carolina Peres (PhD student) and Cleber Gazana (master).