

Eco-sensitive Cyberatmospheres

Ecocentric transformations of domestic spaces

artes interactivas
visuales
programación
ecología sensorial
comunicación paramétrica
interactive arts
visuals
programming
sensory ecology
parametric communication

Este trabajo pretende abrir un debate sobre el enfoque actual de la tecnología en el espacio doméstico. En la actualidad, está considerado como un avance uso de la tecnología como un método para simplificar nuestras acciones humanas y no como una posibilidad de su extensión sensorial hacia el medio que nos rodea. Por otro lado, el trabajo también se utiliza como parte experimental en la que, a través del testeo del software "touch designer" se replantea el enfoque tecnológico en los espacios domésticos hacia una tecnología más comunicativa que resolutive. El discurso planteado es el cambio del enfoque antropocentrista de lo doméstico en un ecocentrismo sensible, sustituyendo así el sujeto humano por el medio comunicador (se entiende como medio comunicador todo agente no-humano, climatológico, animal, vegetal, etc.). De esta manera se establece un intercambio de información visual, a través de lo tecnológico, representando comportamientos y necesidades.

This work aims to open up a debate on the current approach to technology in domestic spaces. Currently, the use of technology is seen as a way to simplify human actions, rather than as a possibility for extending our sensory connection to the surrounding environment. It is also used experimentally, where, through testing the "TouchDesigner" software, the technological approach in domestic spaces is rethought towards a more communicative than solution-oriented technology. The proposed discourse is a shift from the anthropocentric approach of the domestic space to a sensitive ecocentrism, where the human subject is replaced by the communicative environment (understood as any non-human agent, climatic, animal, plant, etc.). In this way, a visual exchange of information is established through technology, representing behaviours and needs.

Manchón Martínez, Lucía¹

¹ Architect, Master's in Architecture, Alicante University, Alicante, Spain.
luciamanez32@gmail.com

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INTRODUCTION

The main driving force behind this work is a personal interest in understanding how the concept of "inhabiting the future" is perceived today and generating a debate around its anthropocentric approach. The goal is not to radicalise or impose a specific viewpoint, but to question the values and priorities of society in regards to the occupation of space and how it can respond.

METHODOLOGY

The proposal is to transform the home into a space that meets the sensory needs of the inhabitant, inspired by digital systems used in art, such as exhibitions, concerts, or festivals. The goal is to rethink the priorities of home automation, giving prominence to "secondary agents" inside and outside the home that influence the domestic environment.

The idea is to create a dynamic and adaptable space where basic human needs are not the main focus. Using tools like TouchDesigner, the other agents in the environment will modify the space to communicate with the inhabitant through sensations.

THE ANTHROPOCENTRIC APPROACH TO SMART HOMES: The Domestic Coldness of the Future

Technological advancements not only create digital worlds but also offer practical solutions to the real world. One example is home automation, defined by the RAE (Real Academia Española) as "systems that automate the installations of a home."² This concept of the *smart home*

(Fig.1) connects and gives "life" to household elements, from appliances to walls, allowing people to control them remotely and have greater control over domestic activities.

Today, we can experience what it would be like to live in a smart home thanks to devices and applications that enhance comfort (Fig.2). However, home automation remains anthropocentric. Do we really need machines for tasks we could do ourselves? Does it make us more efficient, or does it only eliminate simple tasks, thus increasing our dependence on machines and reducing our autonomy?

Moreover, it is crucial to reflect on its emotional impact. Why do we prioritise physical comfort over mental well-being? Could technology focus on improving our emotional quality of life as the foundation for a more balanced life?

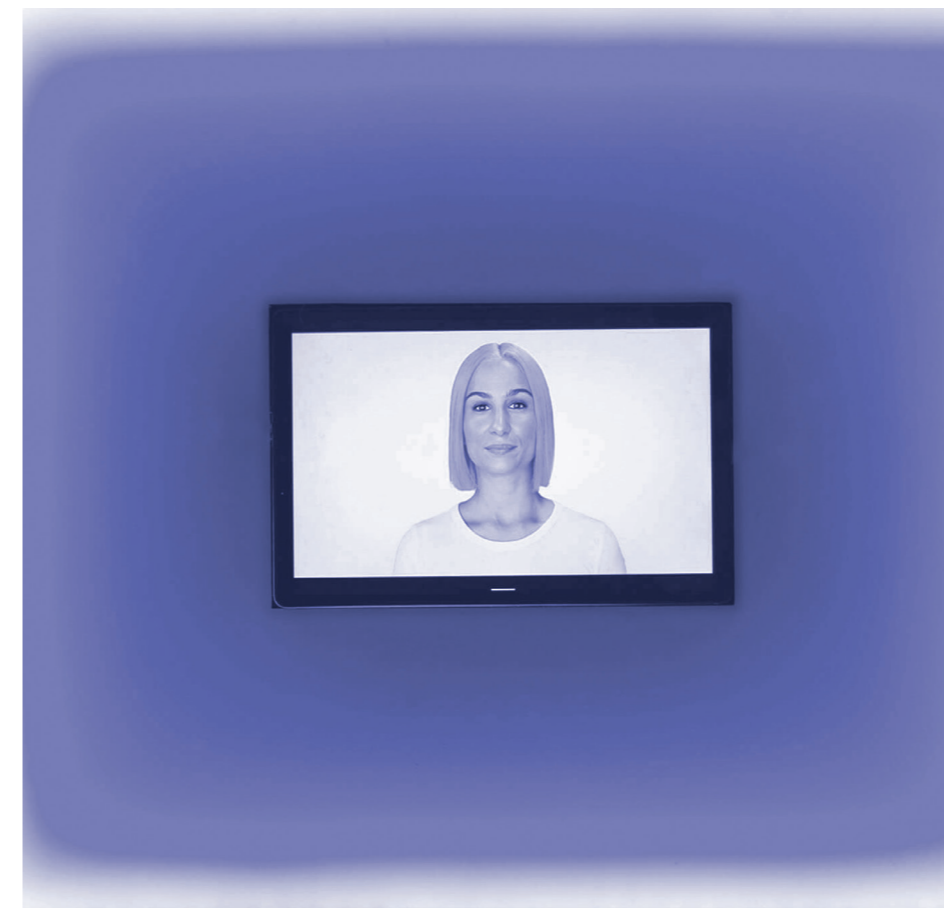


Fig.2 - Cyberhut's virtual assistant that handles all the task for us. Available at < <https://www.cyberhut.io/vivienda> >).

A STARTING POINT TOWARD WARM DOMESTICITY: From Anthropocentric Places to Sensitive Ecocentric Spaces

We must move away from the idea of a human-centered world and adopt a more ecocentric mindset, without forgetting our connection to the ecosystem. Architect María Auxiliadora Gálvez proposes seeing humans as bodies "in ecodependence with the environment"³ that is, as "animated structures"⁴ interacting with the surroundings (Fig.3).

Her approach incorporates concepts like sensory psychology, sensory ecology and somatic ethnography, suggesting that all beings must cooperate and relate synergistically. While traditional ecology studies the exchange of materials and energy between organisms, sensory ecology focuses

on the influences that affect behaviors and functions.

Gálvez also emphasizes the importance of reflecting on our view of the world and ourselves. Changing how we perceive ourselves and our relationship with other beings is key to transforming our actions and the design of our environment.

CYBERATMOPHERES

In this section, a series of real-time informational visual projections are presented, based on the theoretical discourse and the knowledge gained through experiments with TouchDesigner, a visual programming software capable of generating interactive content through real-time information analysis. The aim is to illustrate the shift in technological application within the domestic sphere. Cyber-atmospheres break all cyberspatial and anthropocentric barriers, enabling dialogue and sensory experimentation between agents.



Fig.1 - Interior of the "Cyberhut" house, a home designed with a virtual assistant that autonomously manages the property to provide a more comfortable and optimized living experience. Available at < <https://www.cyberhut.io/vivienda> >).

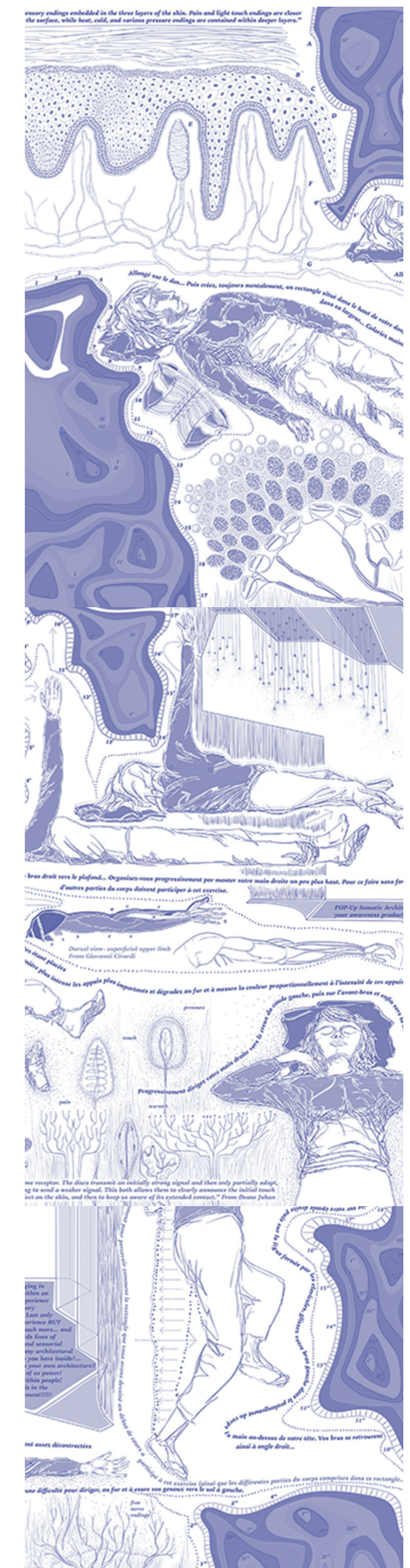


Fig.3 - Explanatory images that María Auxiliadora uses to strengthen her work. < <https://psaap.com/pop-up-somatic-architecture/> >).

CYBERATMOSPHERE 1

I woke up, like as every morning, while listening to a sound I still couldn't quite distinguish clearly. The particles on the floor told me that something was happening in my house. I approached the living room balcony and saw the sparrows that lived in the tree across the street occupying the table where I am used to having coffee every afternoon. The particles stopped glowing. My presence had frightened them away, leaving the house without their songs.

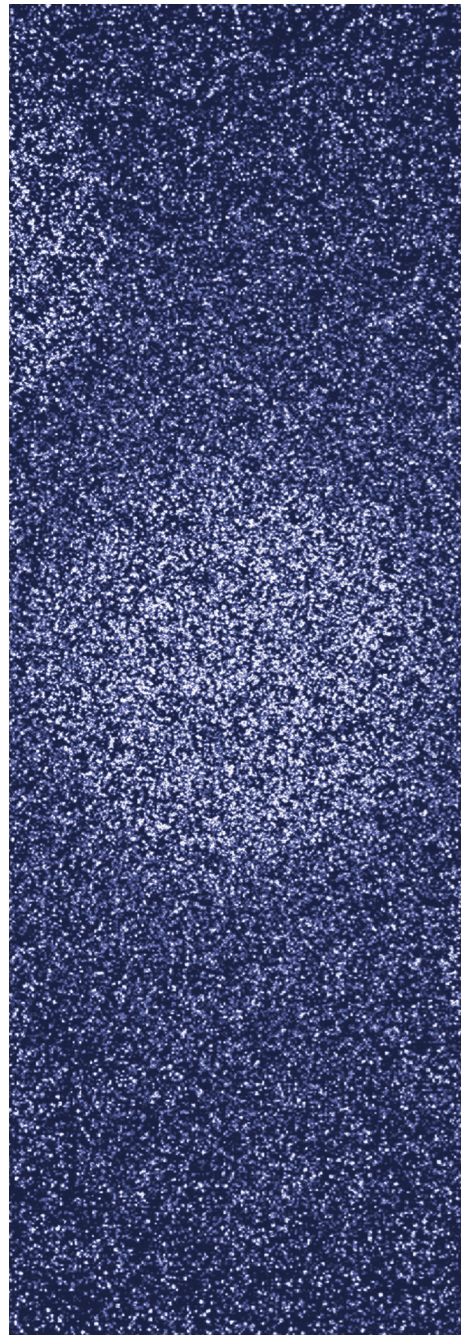


Fig.4 - Visual generated by TouchDesigner of the Cyberatmosphere 1.

TECHNICAL SPECIFICATION

- COMMUNICATIVE AGENT. Birdsong.

- VISUAL DESCRIPTION. Particles on which circular shapes appear (Fig.4), highlighting them in response to the external sound provided by the presence of animal agents.

- RESPONSE OF THE RECEIVER AGENT. Communicative visual. While the person is in the room (Fig.5), she/he is aware that there is an animal presence in an external space within their domestic

environment.

- FUNCTIONAL TECHNICAL APPROACH. From microphones located on the external surfaces, the intensity and rhythm of the sound are analysed. Once captured, it will be processed through TouchDesigner (Fig.6), where the numerical value extracted from the audio will be associated with the diameter value. In this way, depending on the sound captured by each microphone, the distance of the animal and the vocalisation, a series of larger or smaller circular shapes will appear.

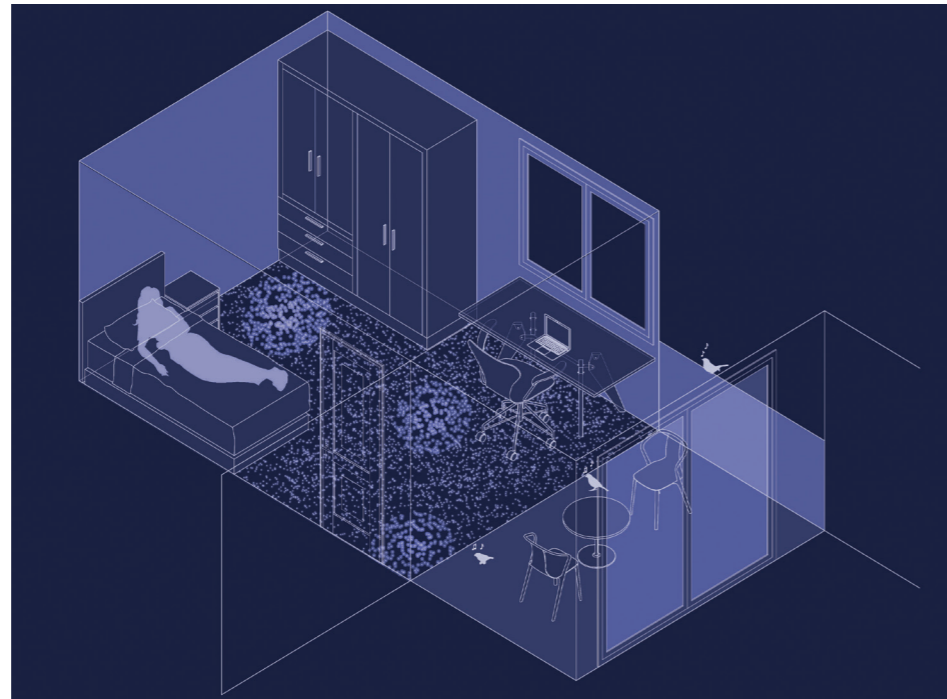


Fig.5 -Explanatory axonometry of the visual functioning for Cyberatmosphere 1.

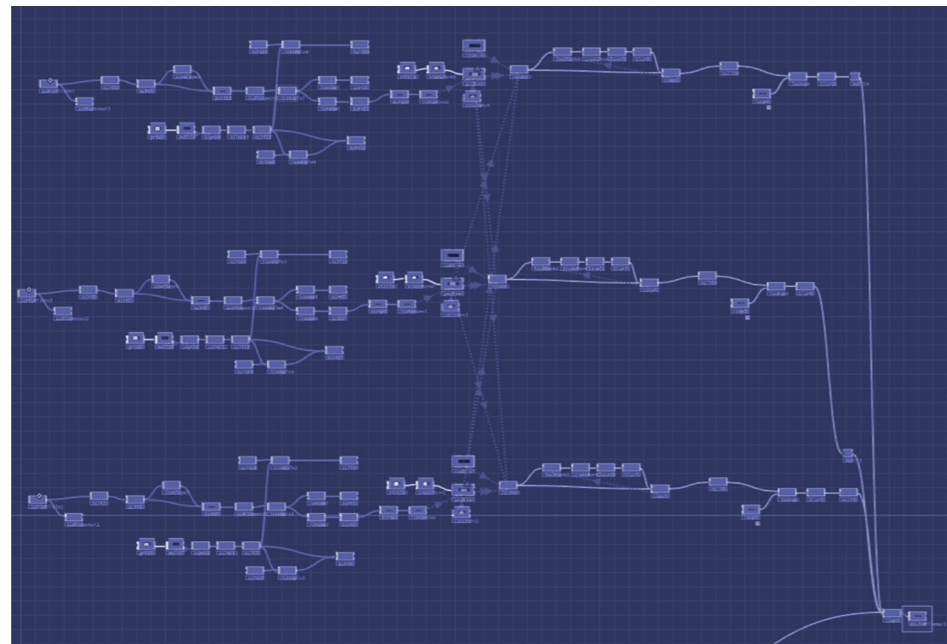


Fig.6 - Visual programming in TouchDesigner to create and operate the visuals for Cyberatmosphere 1.

CYBERATMOSPHERE 2

After a whole morning of hiking in the mountains, I wanted nothing more than a nice hot bath and to relax. I entered the bathroom and undressed when suddenly I started to feel the warm water cascading over my shoulders and back. I opened my eyes and saw the lines that had previously been completely defined on the wall now blurred. By the time I realised it, an hour had passed and the bathroom had turned into a sauna.

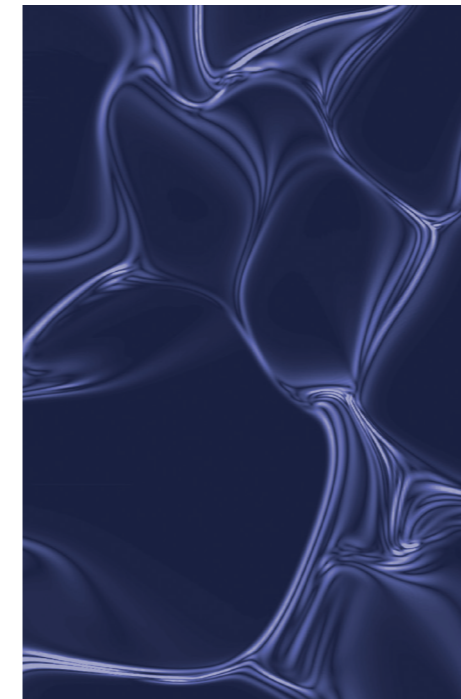


Fig.7 - Visual generated by TouchDesigner of the Cyberatmosphere 2.

TECHNICAL SPECIFICATION

- COMMUNICATIVE AGENT. Humidity and temperature.

- VISUAL DESCRIPTION. Representation of a water projection (Fig.7) as a line when the temperature and humidity in the room are at normal levels, blurring into dots as these values increase.

- RESPONSE OF THE RECEIVER AGENT. Communicative visual. While the person is showering (Fig.8), these visuals indicate that the conditions in the bathroom are

changing due to the use being made of it.

- FUNCTIONAL TECHNICAL APPROACH. Using a hygrometer and a thermometer, the humidity and temperature of the room are analysed. Once captured, this data will be processed through TouchDesigner (Fig.9), where the numerical value extracted from the environment will be assigned to a specific projection. In this way, depending on the atmospheric conditions in the bathroom over time, a more defined or diffuse image will be projected.

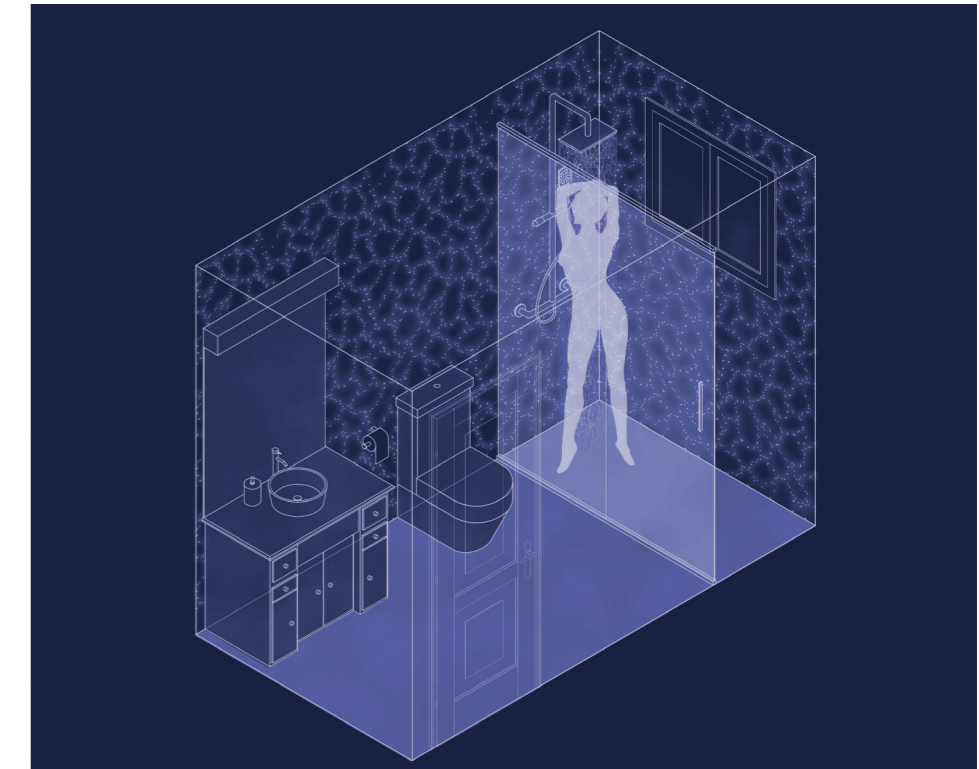


Fig.8 - Explanatory axonometry of the visual functioning for Cyberatmosphere 2.

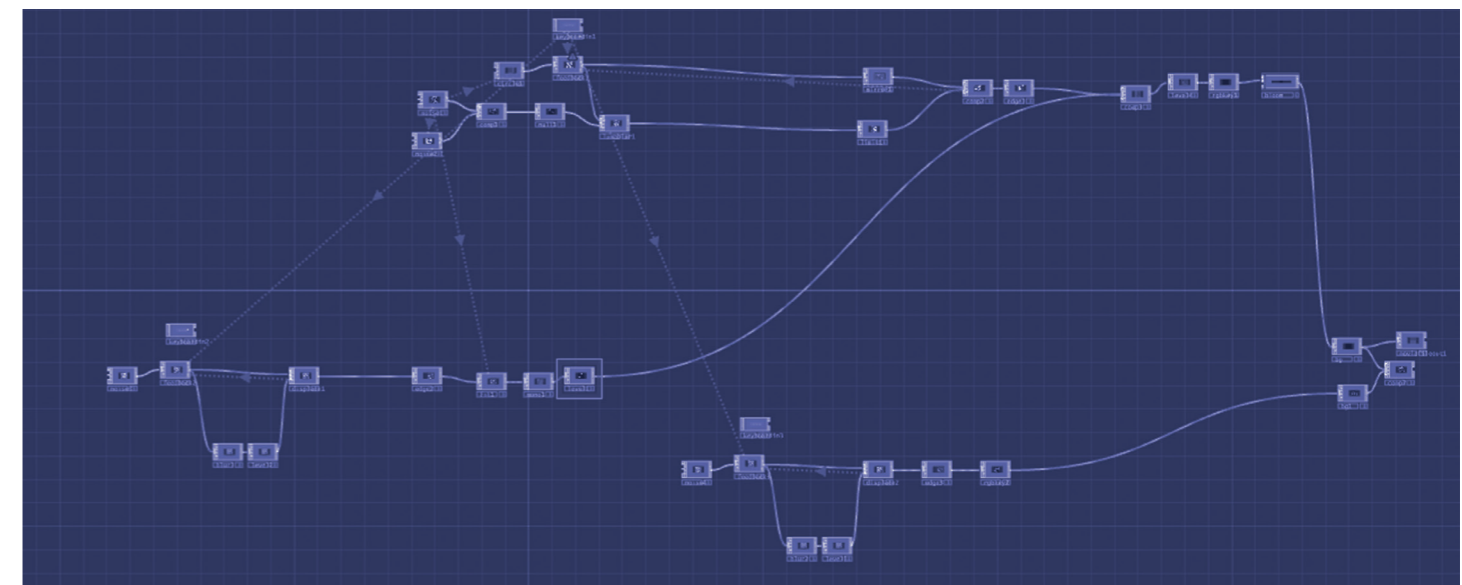


Fig.9 - Visual programming in TouchDesigner to create and operate the visuals for Cyberatmosphere 2.

CYBERATMOSPHERE 3

It was a very sunny Saturday and it was quite hot. I had the whole day free, so I decided to take a rest and sit on the sofa to watch TV. I noticed a change in the room. The plant drawings that filled the space looked sad and wilted. I decided to grab the watering can, fill it with water and go tend to the plants on my balcony. When I returned, the vegetation was happy again.

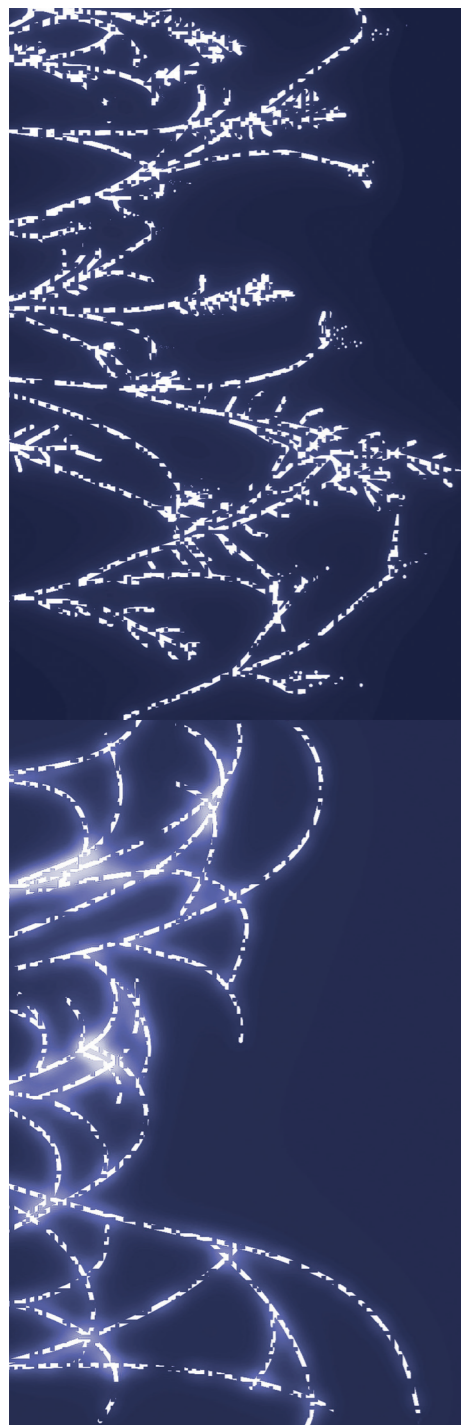


Fig.10 - Visual generated by TouchDesigner of the Cyberatmosphere 3.

TECHNICAL SPECIFICATION

- COMMUNICATIVE AGENT. The vegetation through the soil moisture parameters.

- VISUAL DESCRIPTION. Plants are happy when the moisture level is optimal, wilting when this value falls below the necessary level (Fig.10).

- RESPONSE OF THE RECEIVER AGENT. Provide the necessary amount of water (Fig.11) so that the soil moisture percentage returns to optimal values.

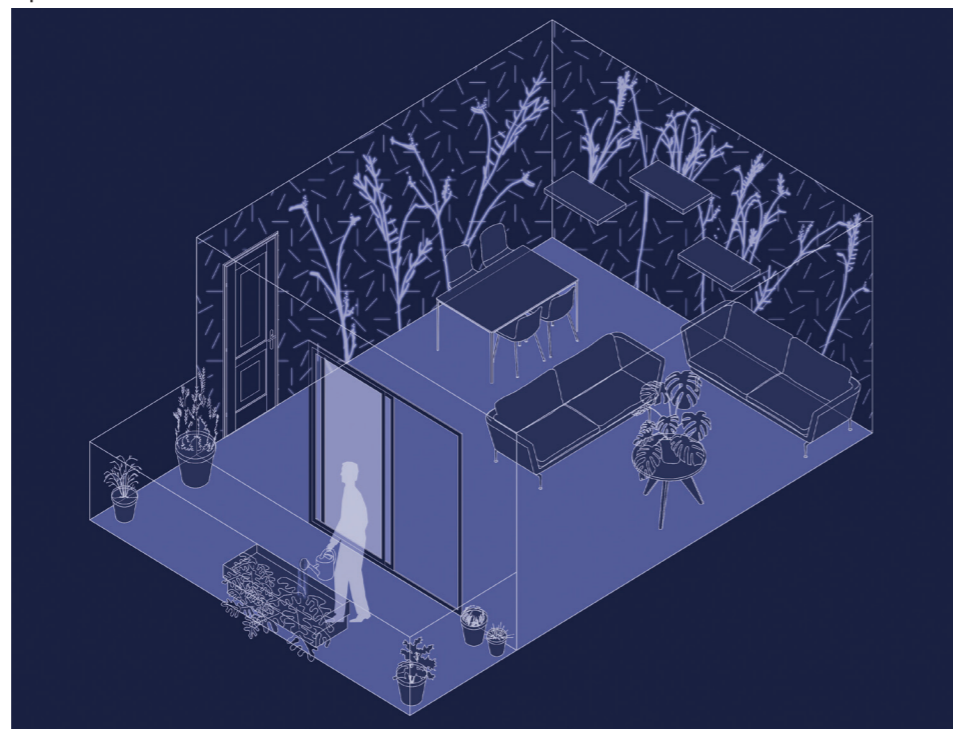


Fig.11 - Explanatory axonometry of the visual functioning for Cyberatmosphere 3.

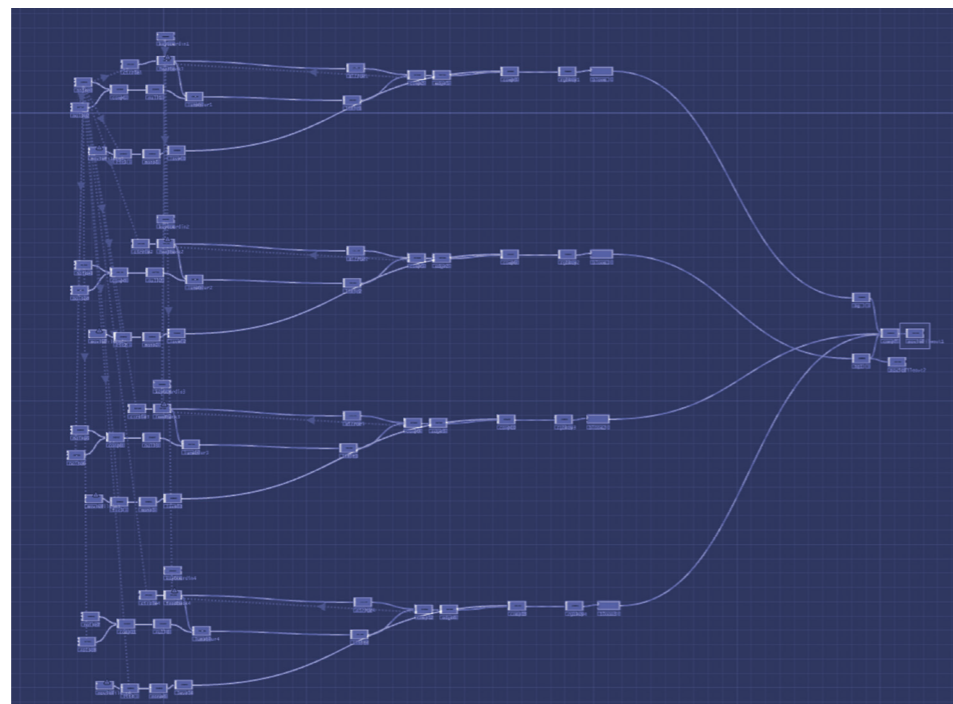


Fig.12 - Visual programming in TouchDesigner to create and operate the visuals for Cyberatmosphere 3.

- FUNCTIONAL TECHNICAL APPROACH. Using a moisture meter placed in the planter, the percentage is analysed through values. These values will be classified into different levels of optimal and insufficient. Once classified, each level will be associated in TouchDesigner (Fig.12) with a visual representation of the plant's condition. In this way, depending on the soil moisture, the vegetation's needs will be visualised.

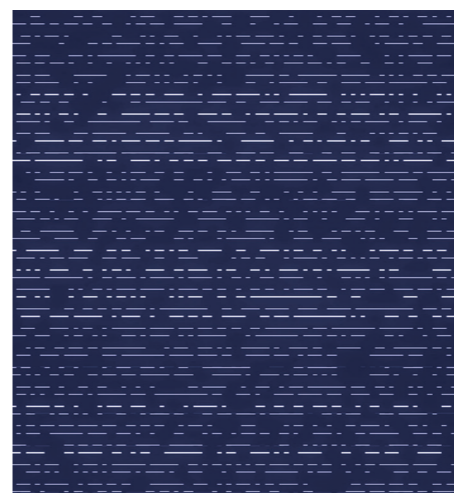


Fig.13 - Visual generated by TouchDesigner of the Cyberatmosphere 4.

CYBERATMOSPHERE 4

I had just got up when I decided to go to the kitchen for breakfast. There was my sister, sweaty from having got up early to go running. The lines in the kitchen were very spread out and dynamic. While I was having breakfast, she was eating an apple and a piece of chocolate. The wall started to become saturated with these strokes. My sister, without passing her phone over the patch, went to the fridge to inject her own insulin after any meal. The wall stopped being saturated.

TECHNICAL SPECIFICATION

- COMMUNICATIVE AGENT. Blood through a smart patch that monitors glucose levels.

- VISUAL DESCRIPTION. A series of short, dynamic vertical lines are represented (Fig.13), which get closer together and lengthen even more when blood glucose levels rise above recommended values.

- RESPONSE OF THE RECEIVER AGENT. Reduce the sugar level through physical actions, pills or insulin injections (Fig.14).

- FUNCTIONAL TECHNICAL APPROACH. Using a smart patch, the blood glucose level is analysed. Once captured, this data will be processed through TouchDesigner (Fig.15), where the numerical value extracted from the patch will be assigned to the number of points from which a line will start to be created. In this way, the higher

the value, the more lines will be visualised, creating a saturation in the projection.

CONCLUSION

Implementing technology from this new perspective completely changes the experience of the human inhabitant in the domestic space, shifting from feeling like the primary owner of everything and the one who must be served, to simply being another co-inhabitant of the environment. In this way, a closer relationship is established, one that is more conscious of the fact that we are not alone on this planet, but that many other beings coexist with us.

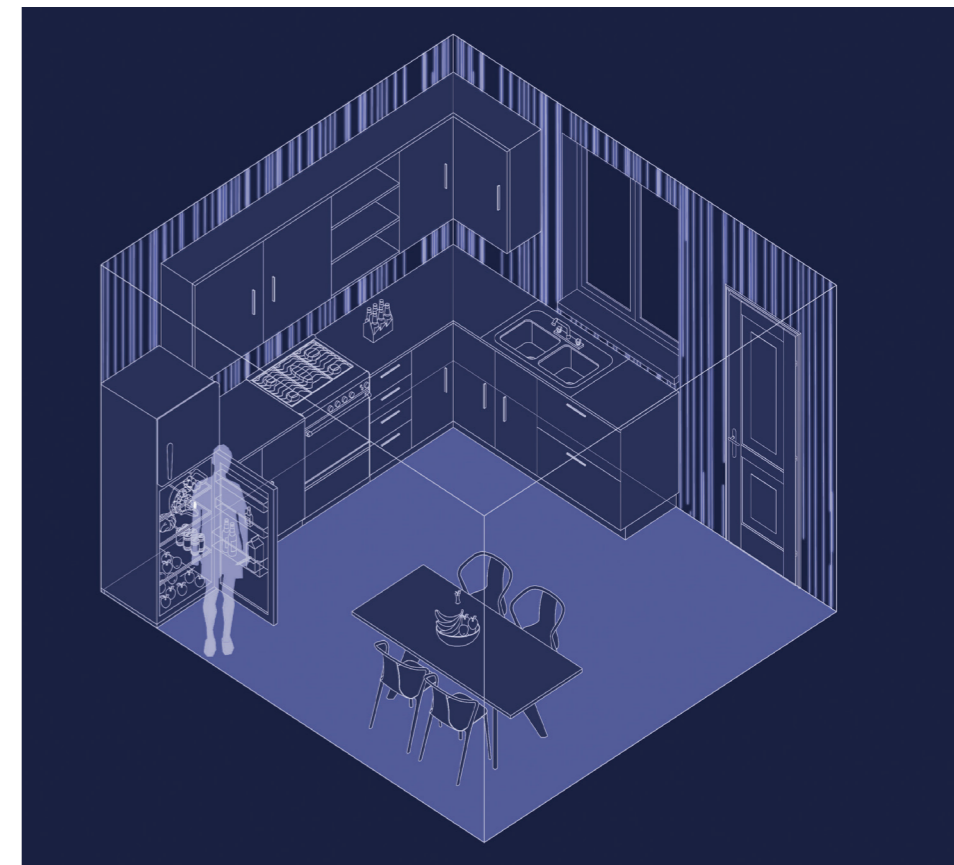


Fig.14 - Explanatory axonometry of the visual functioning for Cyberatmosphere 4.

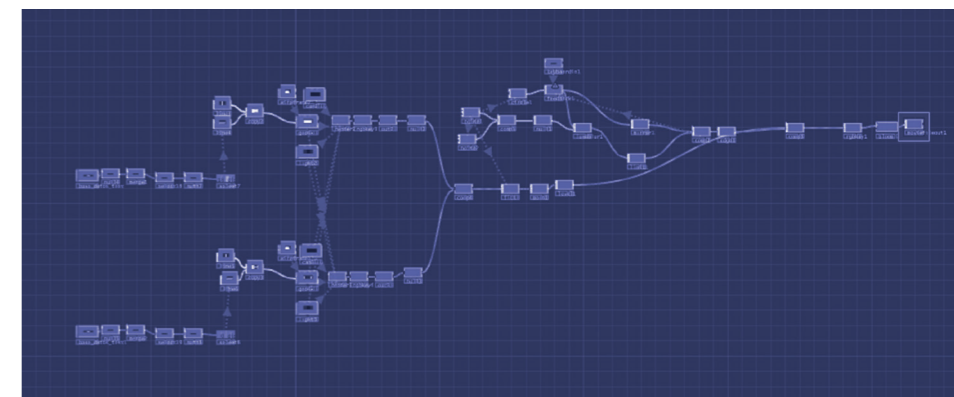


Fig.15 - Visual programming in TouchDesigner to create and operate the visuals for Cyberatmosphere 4.

NOTES AND REFERENCES

1. This concept is used to refer to everything involved in our environment: temperature, animals, plants, cells, and more.

2. Real Academia Española. Domótico, domótica. Diccionario de la lengua española. [online]. Update 2023. Madrid: Real Academia Española. Available at: <https://dle.rae.es/dom%C3%B3tico> [Accessed: 5 December 2024].

3. Humans need nature because we are inherently connected to its conditions.

4. Arquitectura somática. YouTube. [online video]. Published by arquitectura Unicosta, 7 September 2020. Available at: <https://www.youtube.com/watch?v=xfm5qc86NIQ> [Accessed: 5 December 2024].