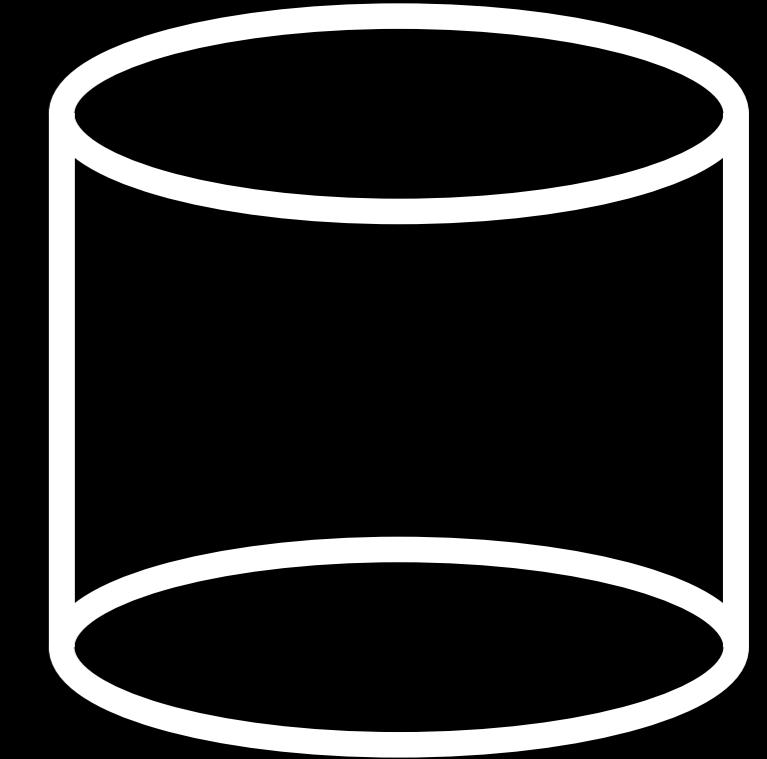


# Esteban Serrano

## CV – Portfolio



### About

I am a designer and coder specialized in creating interactive experiences.

My focus is the development of technical and creative solutions for user interfaces, particularly those that make use of data to bring about new ways of understanding the world.

With over 6 years of experience as an independent consultant creating digital solutions for enterprise and academia. Using data, design, and algorithms.

Go to:

[Clients and publications](#)

[Selected works](#)

### Skills

- Front-end web/UI development
- Data visualization
- Graphics programming
- Creative coding

### Technologies

- Javascript, Typescript, Python
- Next.js
- D3.js
- Three.js/WebGL/R3F
- Unity 3D
- Docker
- Jupyter/Pandas

### Contact

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+56 9 9190 4047  
[LinkedIn](#)

### Education

- MSc in Design Informatics, 2019. From University of Edinburgh, School of Informatics
- Bachelors in Strategic Design, 2014. From Pontificia Universidad Católica de Chile

## CLIENT LIST

Present and former clients include:

- [Francisco Vivanco Arquitectos, Chile](#)
- [Inchat.Design, UK](#)
- [Viapontica AI, UK](#)
- [Cardiff University - School of Computer Science, UK](#)
- [University of Edinburgh - School of Informatics, UK](#)
- [Asimov Consultores, Chile](#)
- [FabLab Santiago SPA, Chile](#)
- [Pontificia Universidad Católica - Escuela de Ingeniería UC, Chile](#)

## PUBLICATIONS

- Conference Paper, Co-Author: [Push-Pull Energy Futures: Exploring new energy ecologies through a field study of the Karma Kettles](#), Designing Interactive Systems 2020, virtual
- Conference Poster, Co-author: Using Data Visualization to Explore International Trade Agreements, Digital Humanities Conference, 2019, Utrecht
- Book, Co-Author: The Eigengrau Laboratory Book, 2016, ISBN: 978-986-9234-07-1
- [12th Media Art Biennale - Catalog Book](#) (2017), Chile
- Press: [Punto Flotante: lenguaje del tiempo en el espacio urbano](#), Archdaily México (Feb 2016)
- Press: [Punto Flotante, de lo escrito a lo concreto](#), Arte al límite (Feb 2016)

## GROUP EXHIBITIONS

- [Living with the Internet of Things](#) (May, 2019) @Tate Exchange, London
- [12th Media Art Biennale](#) (August, 2015) @ Museo Nacional de Bellas Artes, Santiago, Chile
- Interactive performance: Error y Ensayo (Jan 2015) @ PUC Design School

## FUNDING & SCHOLARSHIPS

- Scholarship: Becas Chile Masters - Priority Areas (2018), sponsored by ANID Chile
- Residency: Eigengrau Lab (2014) sponsored by Ministerio de la Cultura y las Artes
- Business accelerator: IIIer Concurso Acelerador UC (March 2016) sponsored by [Centro de Innovación UC](#)

## PATENTS

- [WO2016174634 - Emotional event detection method](#) (2016, bachelors thesis project)

## Floating Point

Self-assigned project

September 2015 - February 2016

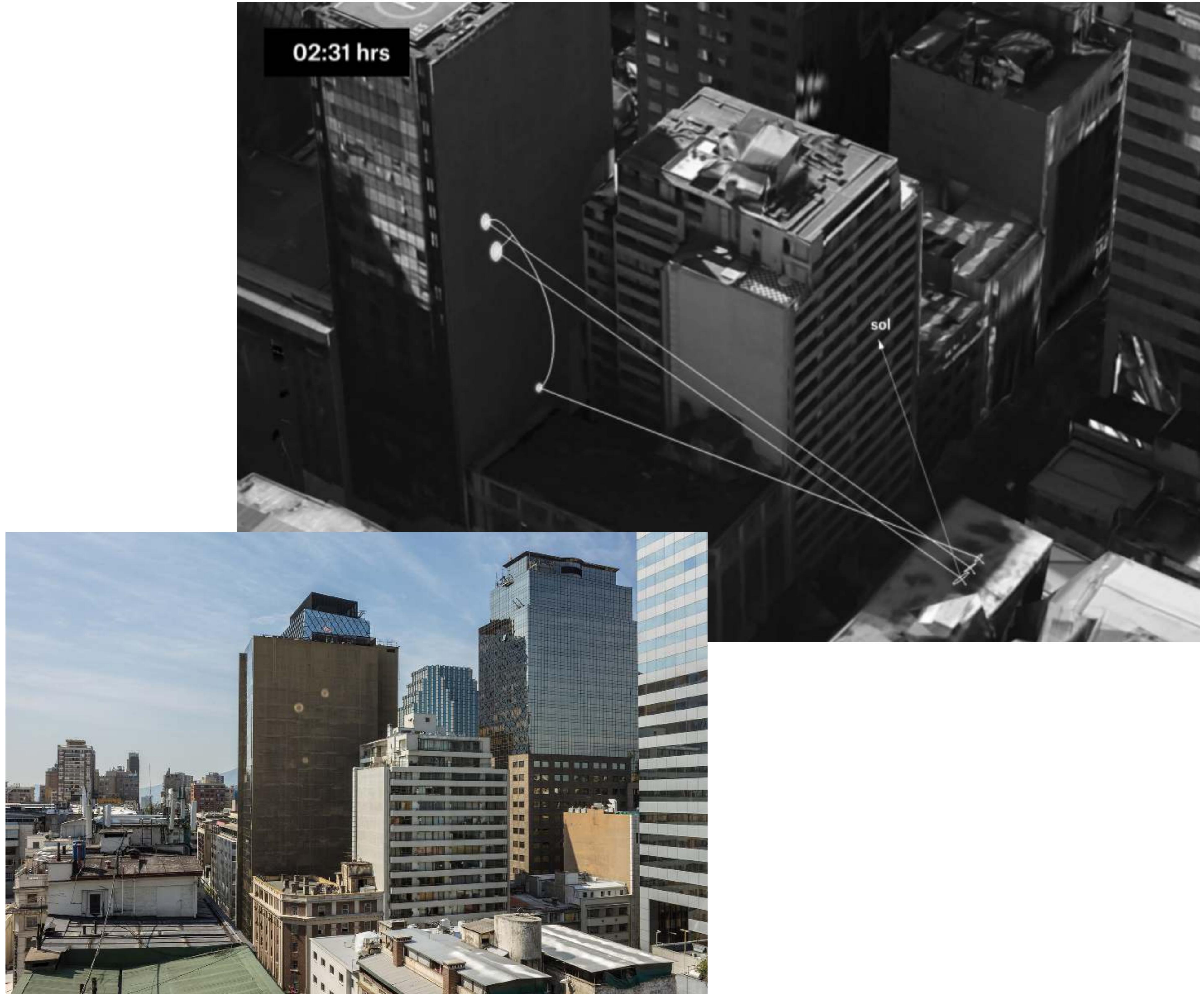
**Technologies:** Grasshopper 3D, Arduino

### [Video of the installation at work](#)

Floating Point was a temporary public installation developed during my residency at Eigengrau Art Laboratory and featured at the 12th Media Art Biennale in October 2015.

The piece was an attempt at exploring other language forms for time within urban space. The installation consists of three computer-controlled circular mirrors (heliostats) placed on a rooftop in the center of Santiago de Chile, hidden from pedestrian's view. They reflect sunlight onto a large nearby facade, dots of light slowly drawing an elliptical pattern each hour throughout the day.

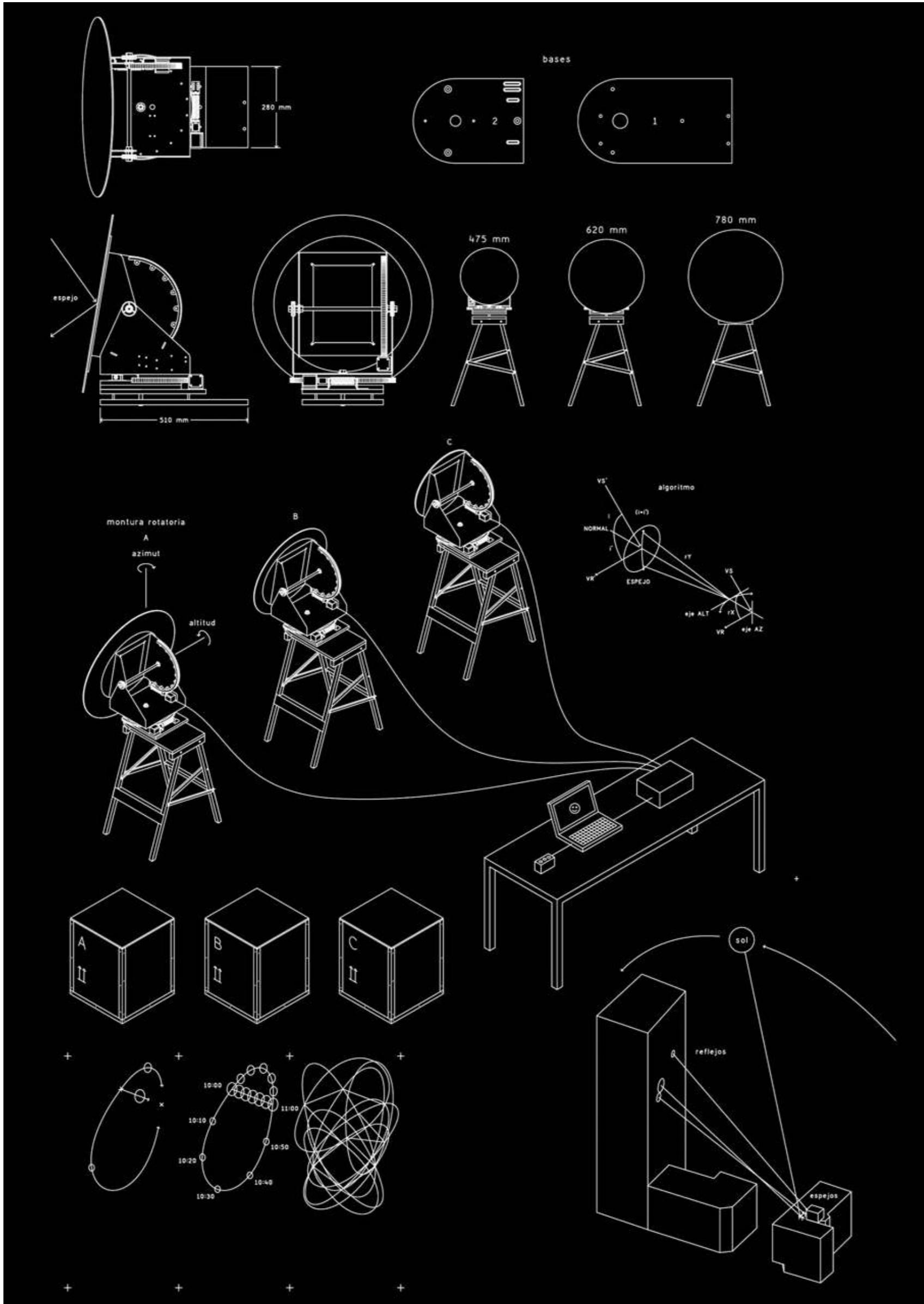
For this project, I developed hardware and custom software to control the heliostats throughout the day and generate the elliptical patterns that the reflected light dots would follow.



[continued >](#)



Heliostats on rooftop



Installation details



Calibration controller, one stick for each mirror



Fully assembled heliostat

## Stones Above Diamonds

Client: Ignacio Gatica, Artist

March 2022 - Ongoing

**Technologies:** Raspberry Pi, Python, LED Matrix

### [Video of the display at work](#)

This project was commisioned by NYC-based artist Ignacio Gatica for his work titled “Stones Above Diamonds”. It consists of a ticker-style display that shows real-time stock data and animates the tickers by scrolling them horizontally.

For this project I developed the software that controls the display and fetches the data over the internet. It supports a very large number of tickers (tested with 200 tickers on a RPi4) and handles the on-screen and off-screen transitions.

A second version of the display was created to show a real-time projection of a country's debt. In order to produce the real-time numbers I created ARIMA forecast models for each country based on data from World Bank's high risk countries list.

This work has been displayed live at Hessel Museum Bard CCS in NY and Gavlak Gallery in LA.



## Chatty Factories

October 2020 - February 2021

**Clients:** University of Edinburgh - School of Informatics,  
Cardiff University, School of Computer Science

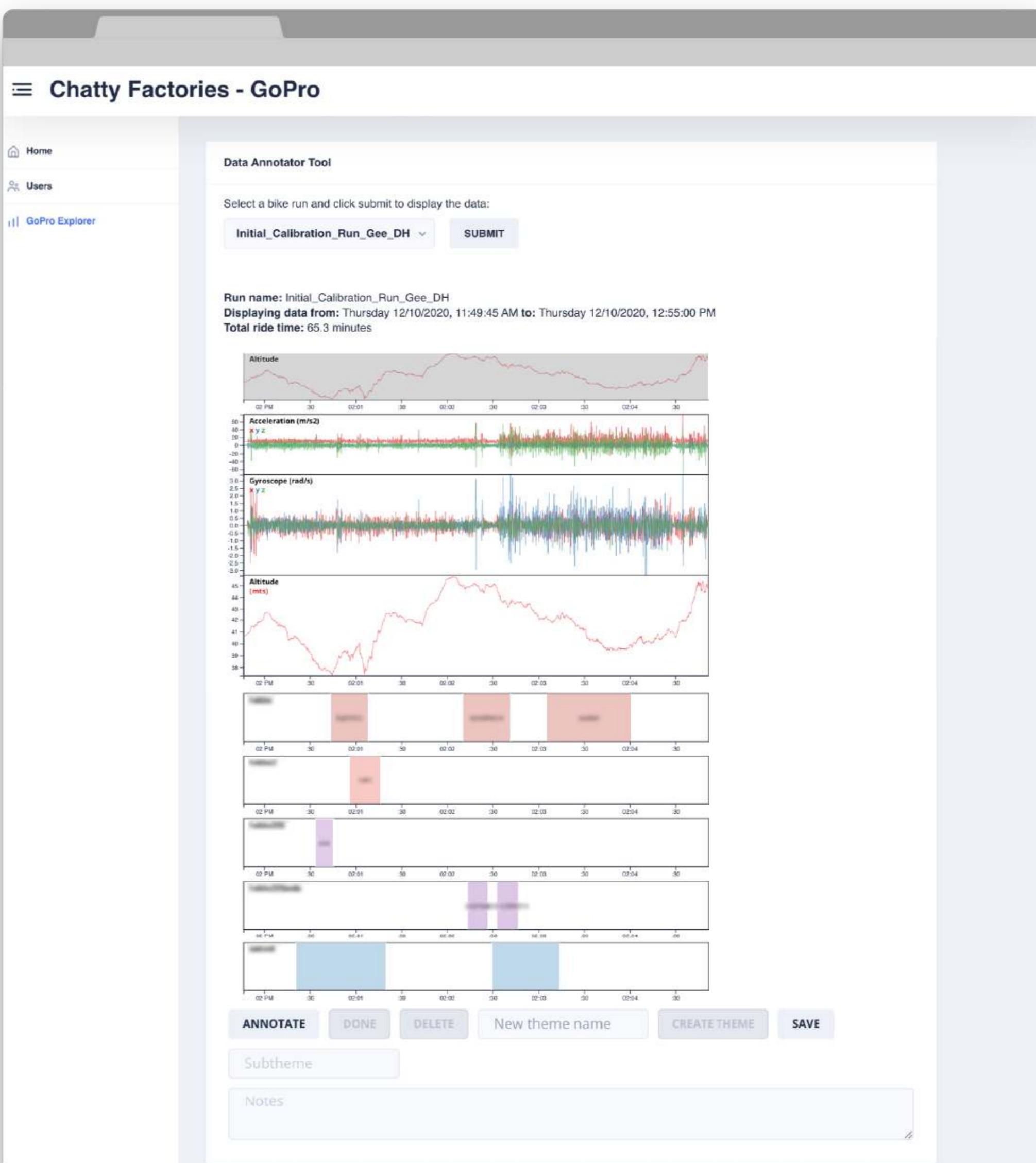
**Technologies:** D3.js, Angular, Express.js

Chatty Factories is a research project funded by UK's EPSRC - New Industrial Systems. It aims to "explore the transformative potential of placing IoT-enabled data-driven systems at the core of design and manufacturing processes".

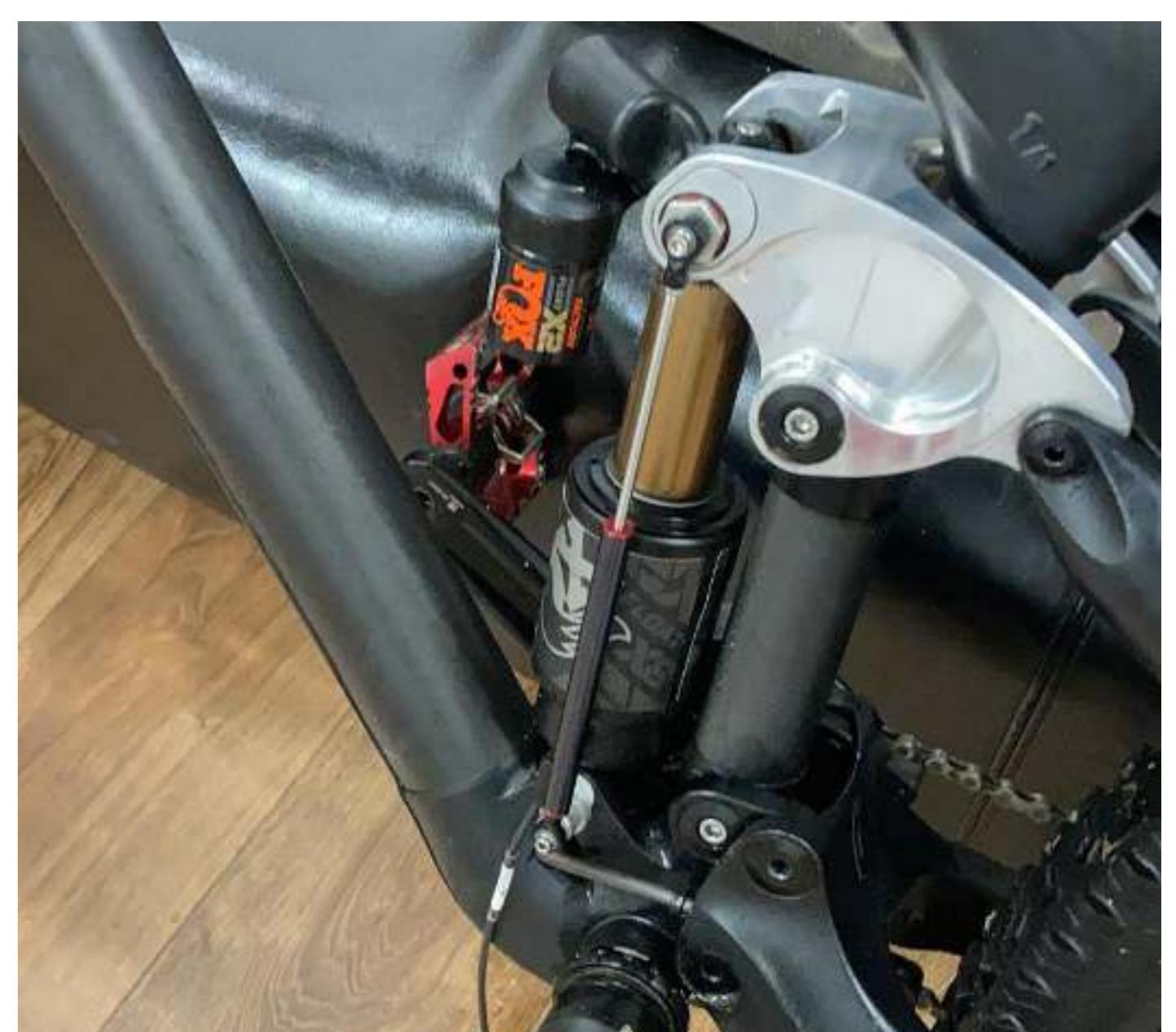
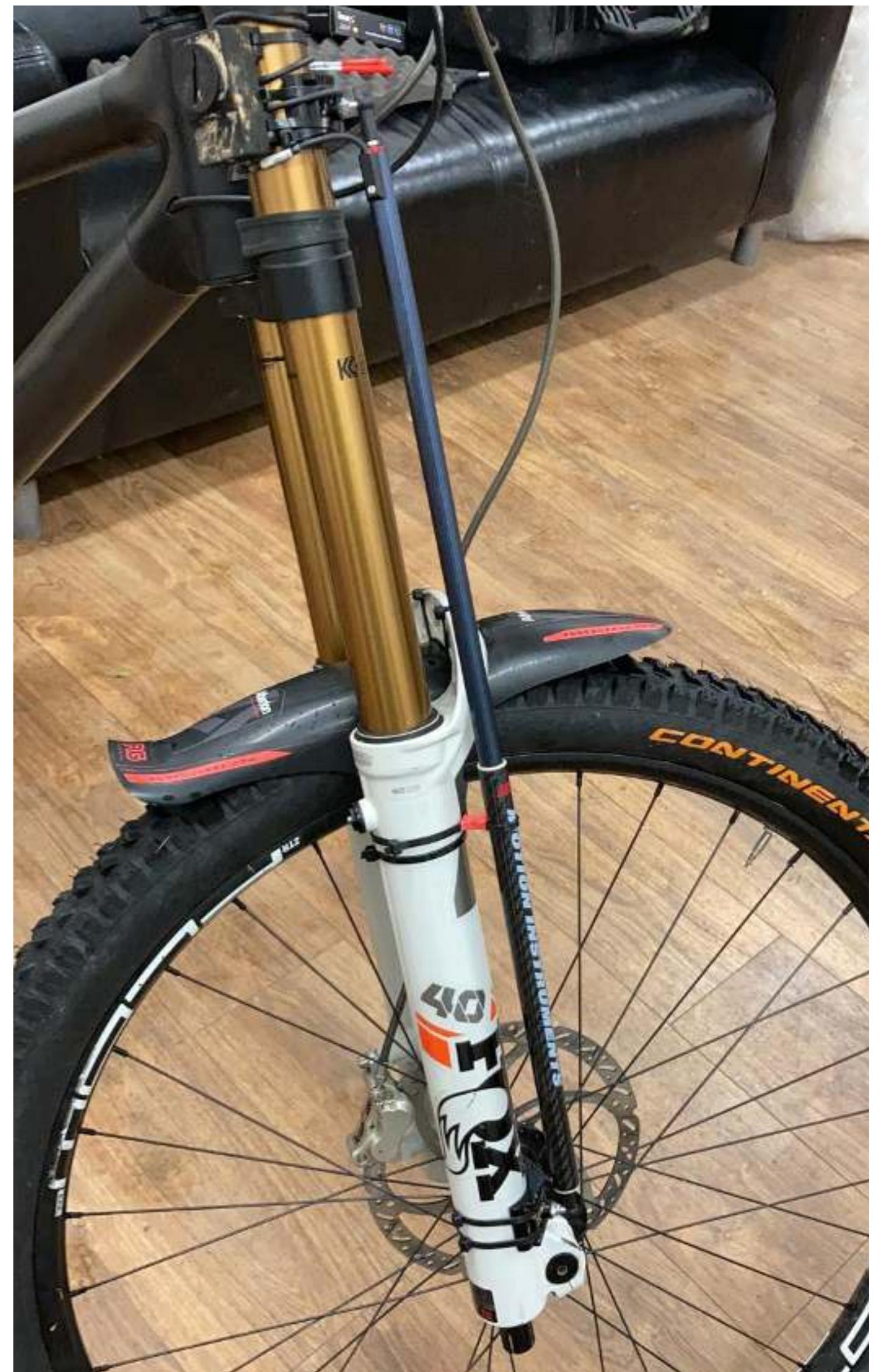
Part of the project involved collaborating with a UK-based manufacturer of high-end downhill bicycles. The bikes were fitted with [suspension sensors](#) and a GoPro camera to be ridden by professional bikers and gather data in the field.

In my role as a software engineer, I developed a web-based dashboard used to annotate points of interest. These would later serve to analyze bike performance and tuning. My contribution includes writing/maintaining code for the Chatty Factories backend API service.

Project lead by Dave Murray-Rust (TU Delft), Kami Vaniea (Edinburgh) and Pete Burnap (Cardiff)



Annotation tool in use



Detail of bike sensors, front and rear

## Comfortable Interactions

MSc Thesis project - 2019

Technologies: Python, Javascript, P5.js

For my MSc thesis project, I explored potential strategies for energy efficiency in office buildings. In this research, I look at current thermal comfort models and the possibility to achieve energy savings by helping users become more tolerant of their thermal environment.

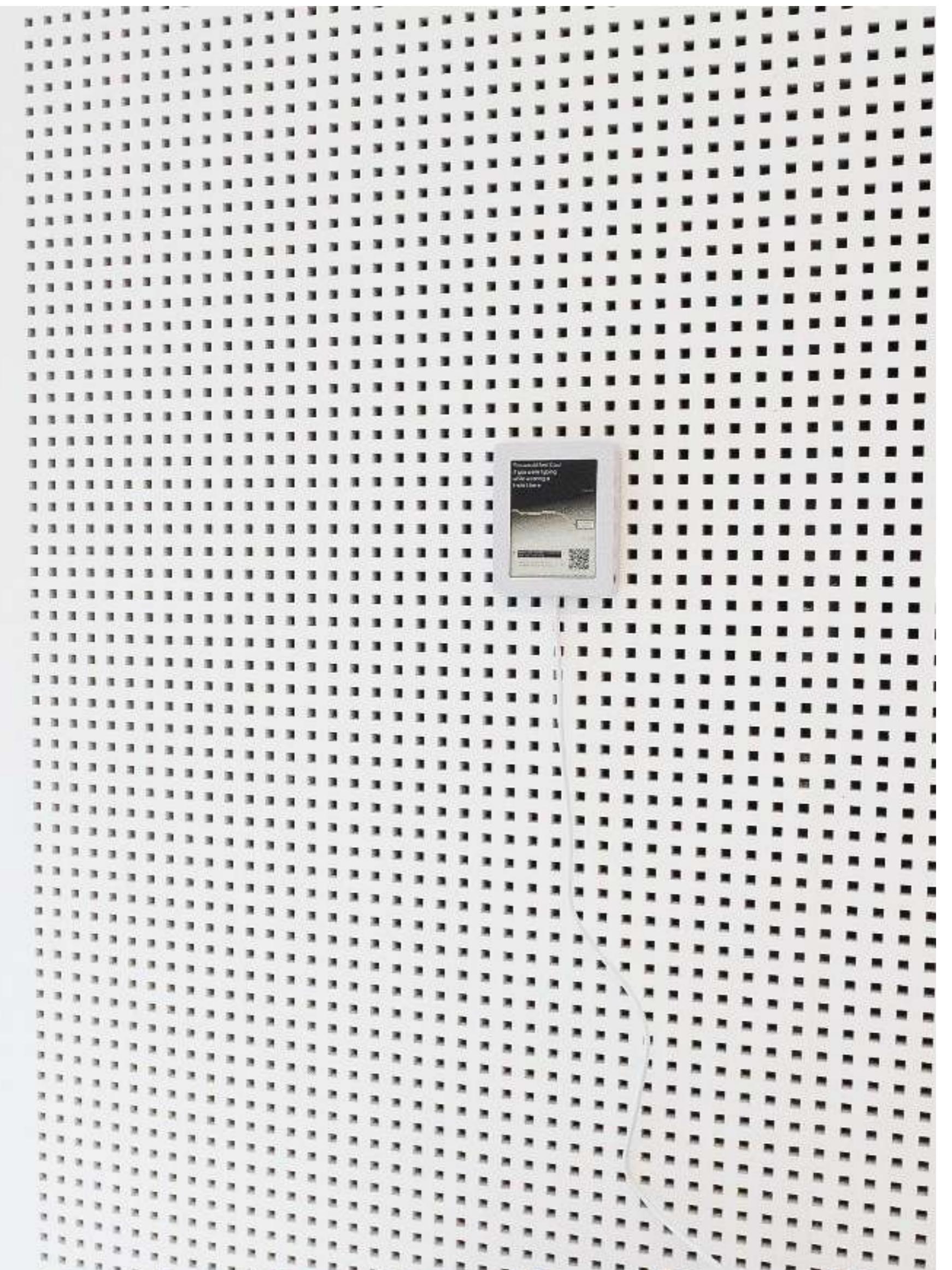
CI is an attempt to understand whether the above could be accomplished by giving users some information about what their environment is tuned to do. Given the out-of-sight nature of heating and ventilation systems, this is something users are rarely aware of.

Potential information cues included:

- What is the expected activity to take place in this space?
- What are people expected to wear?
- What are the affordances available for the user to adjust their local climate?

Two user probes were built to test this idea:

The first one is a speculative interface device that is capable of



Working e-paper prototype



of translating the current temperature and humidity readings of a room into words as a form of explanation for the current thermal sensation. This is accomplished by leveraging data already present in the thermal model itself (ASHRAE-55).

A working prototype was built using a temperature/humidity sensor, and an E-Paper display.

A second user probe consisted of a web-based interface where users can participate in the thermal management of the building. Either by accessing their room's HVAC information, reporting issues, or casting a "thermal vote". The prototype was evaluated using qualitative UX research methods.



Sample "thermal" sentences

Web interface captures

## Karma Kettles

December 2018, April 2019

**Client:** Edinburgh University School of Informatics

**Technologies:** Arduino, Platformio

What is the future of electricity demand and supply? What kinds of habits are people going to develop with power-hungry devices that interact with a smart grid? Can these devices promote sustainable use of electricity?

Karma Kettles are a speculative design artifact developed to elicit discussion around these questions by using an object of particular significance to the UK public. The project was showcased at Tate Exchange in London for [Living with the Internet of Things](#) in May 2019.

My work involved firmware development for the control system and interactive display that would have to work alongside a repurposed BOSH kettle. Part of the challenge was to make sure the kettle was safe to operate as a research probe in user's homes.

This project was developed along with designer Billy Dixon, Luis Soares PhD and Larissa Pschetz, PhD.



Control interface internal detail



## Central Venous Access Simulator

December 2019 - March 2020

**Client:** Medical Training Technologies (MTT), Chile

**Technologies:** Unity3d, C#, Arduino

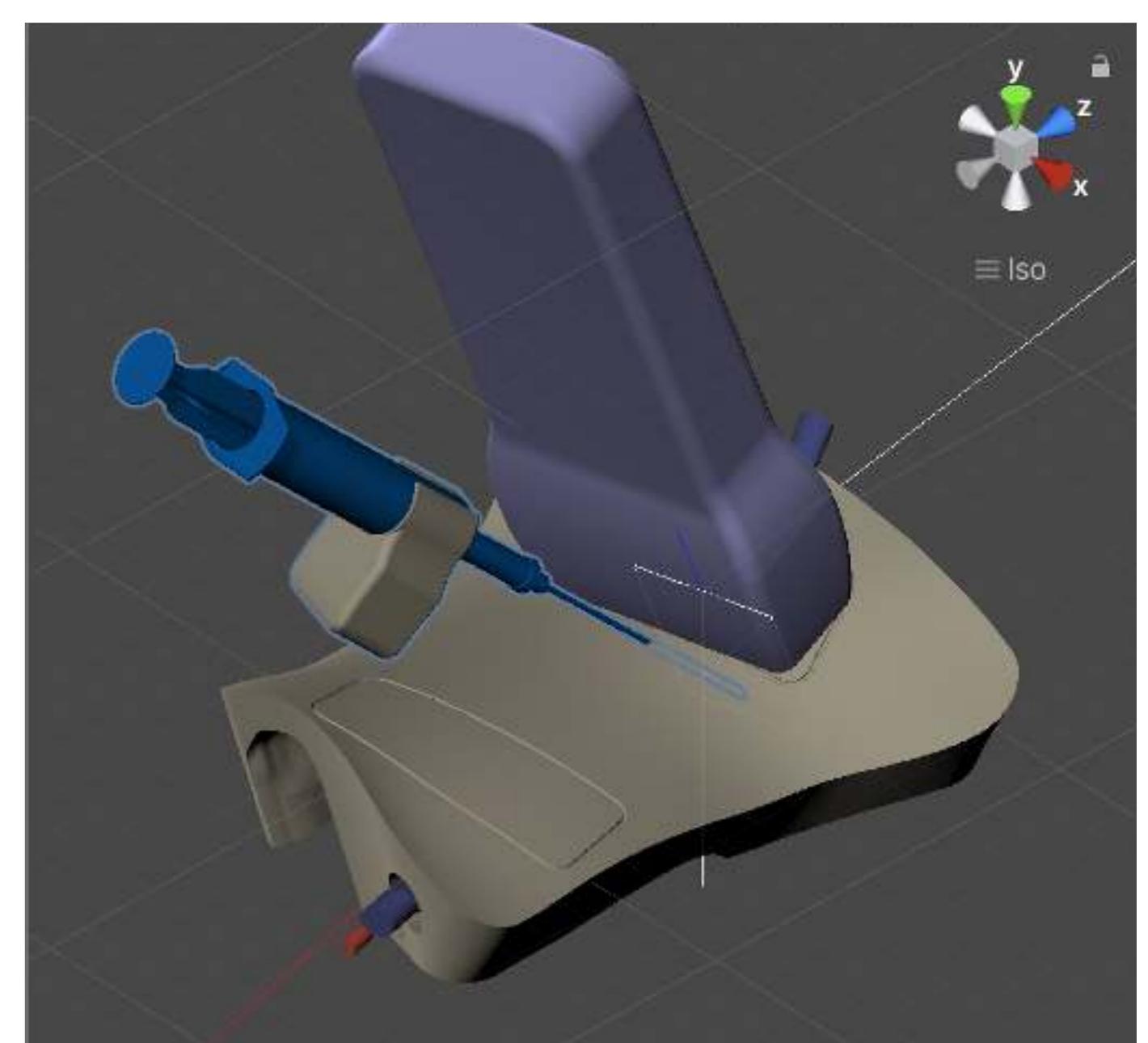
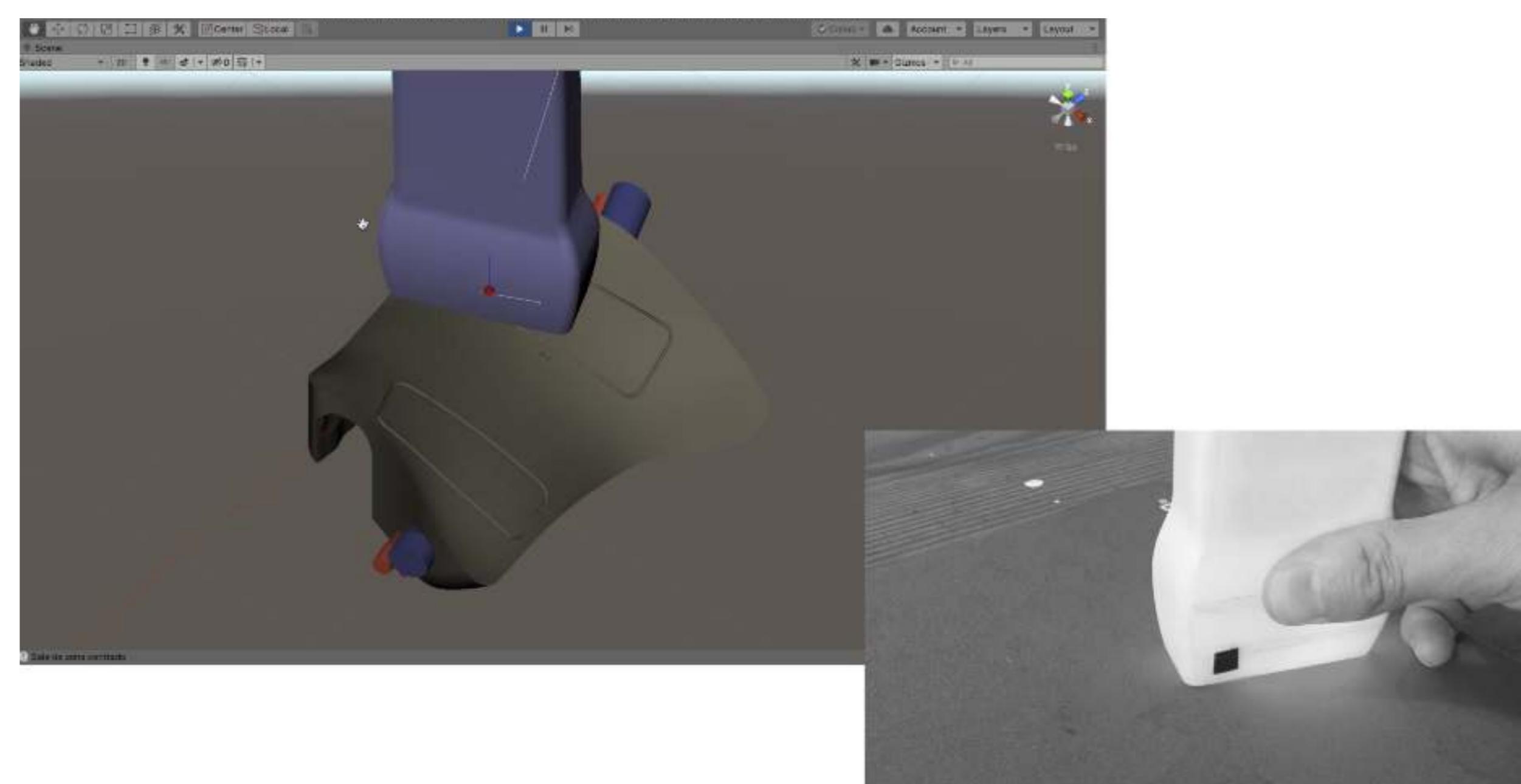
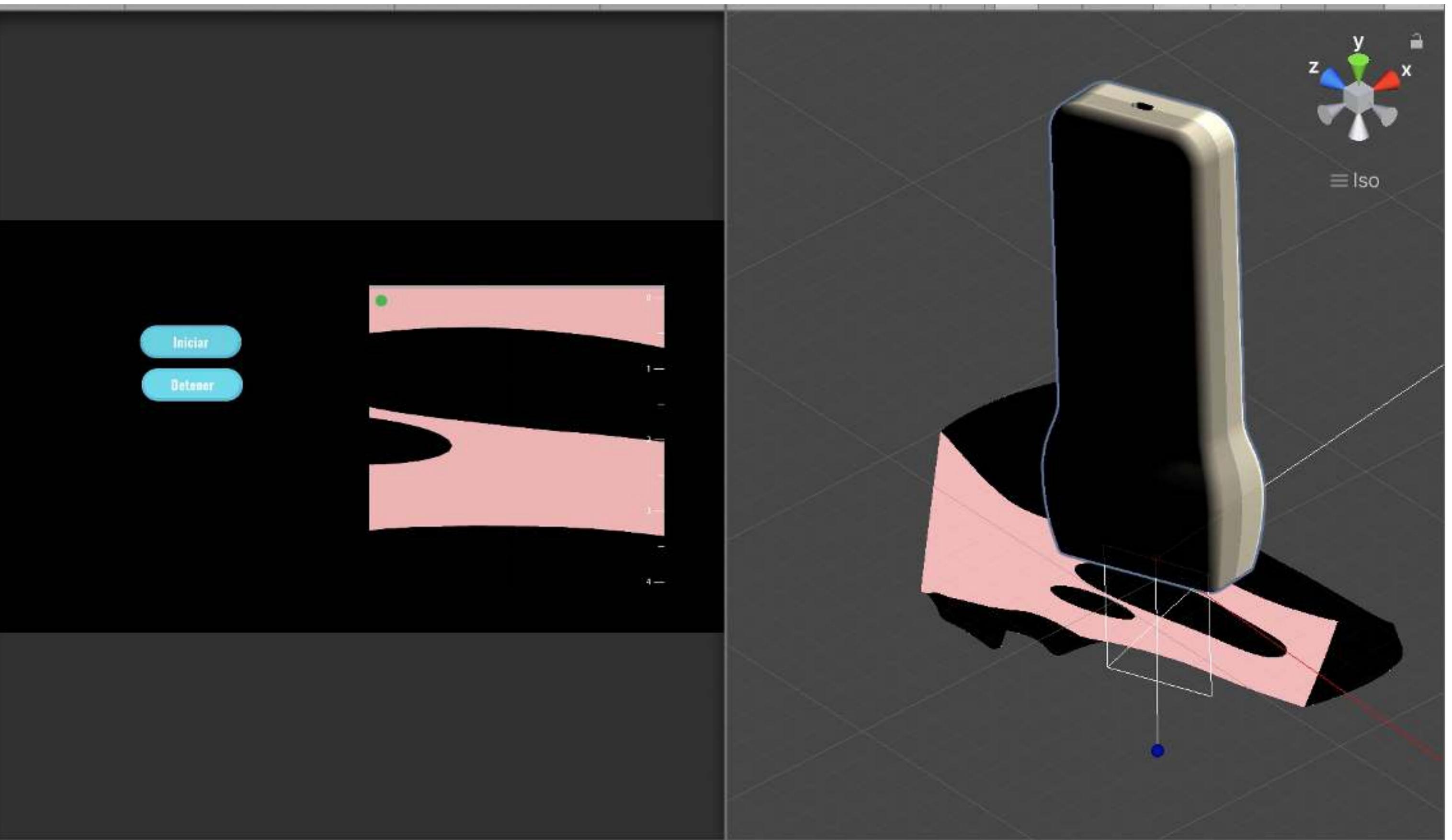
Watch a brief demo of the simulator in action [here](#) and [here](#).

MTT is a startup company whose mission is to create low-cost, innovative training medical simulators.

I was hired to be part of the team building a simulator for [Central Venous Access](#), a medical procedure that involves placing a catheter in the heart of the patient with the help of an ultrasound device.

The simulator consists of a dummy ultrasound transducer and syringe units equipped with sensors and logic that enable them to determine their position and orientation relative to a physical model of the human body.

My task was to develop an interactive 3D scene in Unity interpreting each device's sensor serial stream to create a 2D representation of the slice of virtual tissue scanned by ultrasound.



Sample ultrasound and sliced 3D model views