



Frida Creative Scope
and Technical Specs

JUL 2021

cocolab.mx



We are a company based in Mexico City with experience in designing and operating entertainment.

For eleven years, we have been in the business of inspiring people through amazing multimedia experiences. *But the times they are a-changing*, so we decided to stir things a little and open the doors to our internal creation processes to offer them as services.

Our Expertise

We produce world-class experiences through a deep understanding of our audiences.

Strategy Audience and market analysis to set the foundation of inspiring experiences.

Scenography Design and production for the creation of new worlds and spaces.

Interaction Design of the physical and emotional relationship with physical and digital environments.

Technology Develop solutions and platforms to make the impossible, possible.

Content Create stories in different formats to inspire and engage people through all their senses.

Our Team

At Cocolab we have something in common: we are all different.

Each member of our team contributes with their talent, interests and ideas, enriching our culture, values and the depth and breadth of our projects.

Multiple areas of expertise

Narrators, filmmakers, producers, animators, illustrators, musicians, digital artists, visual artists, architects, industrial designers, graphic designers, information designers, interaction designers, video game designers, systems engineers, software engineers, computer engineers, electronics engineers, industrial engineers, civil engineers, sociologists, psychologists, and anthropologists.

Cocolab Around the World

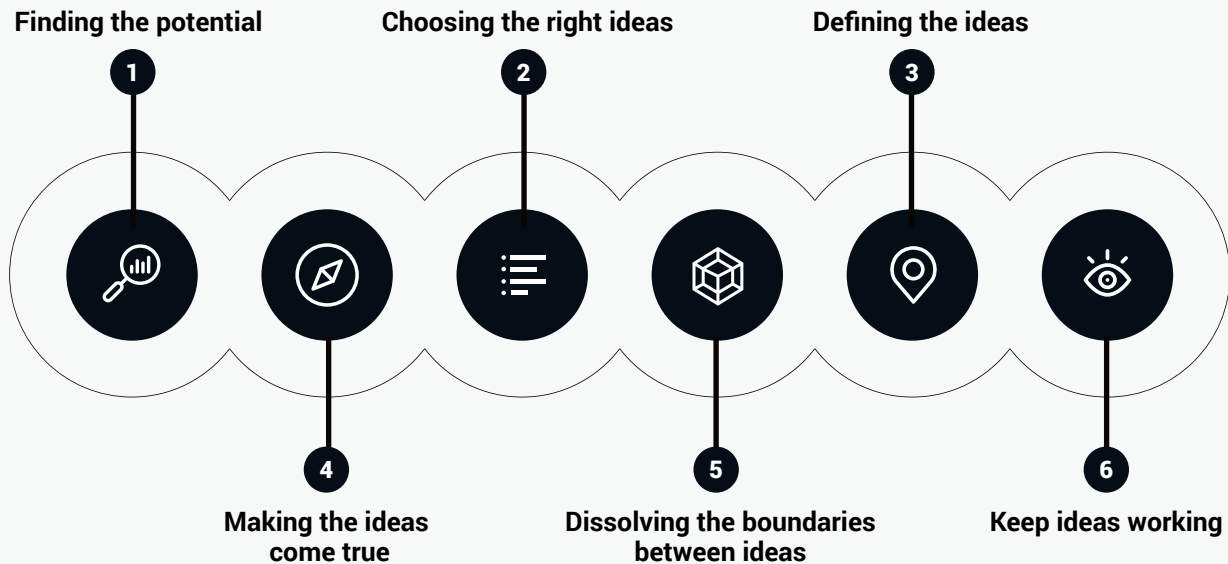
Cocolab has been combining art, technology and entertainment all around the world with projects in Canada, the United States, England, Thailand, Germany, Japan, China, Italy, Spain and Brazil. No matter where you are, we are looking forward to working with you.

INSPIRE / OUR PROCESS

Cocolab's Methodology

INSPIRE is the constantly evolving process we use at Cocolab to guide and shape our work. It is a collection of best practices and sequences on how to execute a project.

Its objective is to structure how we work, not to restrict what we do or how we do it.



1 Program

We understand the needs of the project and explore its potential.

- 1.1 Desirability
- 1.2 Viability and Feasibility
- 1.3 Objectives and Master Plan

2 Concept

We turn intention into action and define the direction of the project.

- 2.1 Product strategy
- 2.2 Concept Design
- 2.3 Concept Development

3 Design

We defined every detail necessary to build a viable solution and relevant experience.

- 3.1 Schematic Design
- 3.2 Design Development
- 3.3 Manufacturing Documents

4 Production

We make ideas come true: desirable for people, economically viable and technologically feasible.

- 4.1 Pre-production
- 4.2 Manufacturing
- 4.3 Showroom

5 Integration

We dissolve the boundaries between project components to achieve a unified experience.

- 5.1 Installation
- 5.2 Calibration
- 5.3 Harmonization

6 Operation

We keep the ideas alive and preserve their original essence.

- 6.1 Pre openings
- 6.2 Showtime
- 6.3 Operation, Maintenance, Measurement and Evaluation

Introduction

Citibanamex Presents Frida: The Immersive Experience, is the first experience of its kind made and produced in Mexico by a Mexican company. More than one hundred people participated in this production, bringing together a diverse group of specialists from around the world.

After two years of hard work and dedication, this unique experience premiered in Mexico City. In order to achieve this, new technologies were developed, 23-foot tall canvases in the shape of shawls and dresses were built, 86 projectors, 45 speakers, 76 lights and 53 motors were assembled, made to work together in the telling of an emotional journey through Frida Kahlo's life and work.

Original concept (Creative Director)

Cocolab is a company that conceives, designs and produces original ideas. Beginning with an initial concept, the creative team expands this starting point through the different phases of design and production, and so transforms the seed idea into extraordinary experiences of international quality.

Frida: The Immersive Experience takes the following question as its starting point: how can we encourage people to walk into a painting? In order to achieve this, the paintings must come to life and the space must invite you to explore. The initial idea requires a large, imposing format, one that inspires surprise and curiosity, and that allows each person to create their own experience through exploration.

The project also takes inspiration from the different sides of the artist. Frida Kahlo was a unique figure who broke boundaries, both as a woman and as an artist. For this reason, the immersive element and the thread curtains invite the spectator to walk through walls and explore different sides of Frida's personality—from the heart at the center of the experience, to the interactive zones that represent the more intimate side of her diary or her more sociable and playful aspect.

It was the development of these key ideas, alongside research and experimentation, that defined the final form of the experience. The creative direction of a project such as this one ensures that all its parts, from the most abstract concepts to the most technical elements, work together in creating a cohesive and connected final product. This requires careful follow-up of the initial concept in each phase of the process, allowing it to act as the through line that produces the necessary coherence for an extraordinary experience. At Cocolab we like nothing more than to develop a project from the very first idea to the final execution, and we take pride in the adaptability of our process to meet the needs of any creative challenge.



Frida's world (Set Design)

For Cocolab, the relevance of the physical in digital worlds is key, and much of our innovation looks to potentialize the digital by experimenting with the material. Frida: the immersive experience is a clear example of this: a plastic and sensorial experience that employs diverse materials, textures and surfaces – cotton threads, sand, silk flowers, blown glass droplets – as physical support to the visual digital content.

The recurring dualities in Frida Kahlo's paintings—life/death, joy/pain—are reflected in the physical elements: a light cloud of silk flowers and heavy drops of blood made of blown glass, coexist at the center of the space. In the same way, the interactive zones and elements offer immense possibilities for the digital and the material to coexist through interaction – by taking a magic paintbrush in our hand, we discover what it's like to paint with light, making it a tangible part of our physical experience; as we enter a photo spot, we find ourselves, for an instant, immersed in Frida's kaleidoscopic world.

Through highly specialized artisanal processes, a completely immersive space was created: 26 monumental canvases, each 23 feet high, designed in the shape of shawls and dresses, inspired by traditional Mexican garments that suggest Frida's silhouette. At the center, a kinetic cylinder holds a sculpture made up of 760 mobile elements, representing the heart of the experience. Thousands of threads (1.5 tons) make up the curtains, physical portals to the different sides of Frida's spirit. A vast spread of sand evokes a feeling of complete immersion as we navigate through the space.

Technological Innovation (Technology)

For over a decade, Cocolab has been experimenting with technology's potential, explorations that today culminate in Frida: The Immersive Experience. For this project, new technologies were developed in order to meet its specific needs: software and line codes that would allow 83 projectors, 45 speakers, 76 lights, 53 motors and 25 computers to work simultaneously in order to generate a connected experience, all of these elements working together as a single canvas controlled by a single brain.

At the same time, new technologies were developed for the interactive zones. The interactive element means that the protagonist of the experience is the user—so the technology must be seamless: an invisible thread that makes the magic happen at the moment of the interaction. In this way, every visitor directs their own experience, relying on their intuition and imagination to navigate the immense possibilities of this technological world.

The innovative format through which Frida Kahlo's paintings are presented, required a different way of offering context and information about the artist and her work. For this purpose, we created a mobile App that synchronizes the content of each scene with the description of the paintings as they appear, helping the user to deepen their experience without the need of a catalogue or audio-guide. That is to say, relevant contextual information is presented in a way that works hand in hand with the rest of the experience.

The paintings come to life (Motion)

Frida's paintings come to life through animation and 3D elements. Keeping a careful adherence to the original artwork, the emotional script and the creative principles that were developed for the project, Motion generated extensive content that communicates the specific narrative of each scene through movement. This required not only a high level of specialization at the technical level, but also of a deep sensitivity from the team.

In order to achieve this, high quality control was key: making sure that every detail, from the smallest object or movement to the lighting and color temperature of the animation, responded to the universe of the paintings in appearance, form, color, texture, and primarily, in its emotional expression.

The Motion team was made up of 32 people working in direction, production, art, animation and systems. The project required people who were highly skilled to work with 2D, 3D, character animation, textile and particle animation; a group of experienced digital artists capable of responding to the project's specific needs. Some renders took 7 or 8 hours, while others took up to 2 or 3 days for a single scene, generating around 3.5 terabytes of data for the show. This gives a clear idea of the amount of time in terms of human and processing power that was required in order to create this multimedia experience.

The music in Frida (Audio)

The original music for this experience was composed by Fernanda Ulibarri, in collaboration with Gloria Estrada. The process began with a series of improvisations with the instrumentalists, using Frida Kahlo's paintings as inspiration. The aim was to create an emotional journey across the different stages of Kahlo's life and work.

Ulibarri gathered and led a group of women interpreters of a range of instruments, including harp, marimba, accordion, piano, cello, violin, percussion, vihuela, guitar and synthesizers. In addition, we collaborated with six women from the Female Orchestra of Tlahuitoltepec, Oaxaca, who recorded the wind instruments: trombone, tube, clarinets, piccolo, saxophone and trumpet. The choice in musical instruments was intended to create an orchestral sound with a taste of Mexico, a sonic color that the orchestra from Oaxaca brings naturally through its instrumental character.

For this experience, a playback system was built that allows the music to be heard in 45 speakers surrounding this immersive space.

Scenography



The creative intent of this experience is to invite the audience to walk through walls, and in so doing, to step from one aspect of Frida's world to another. Frida had different sides to her personality and all the physical elements in the experience display the complexity of Frida's spirit.

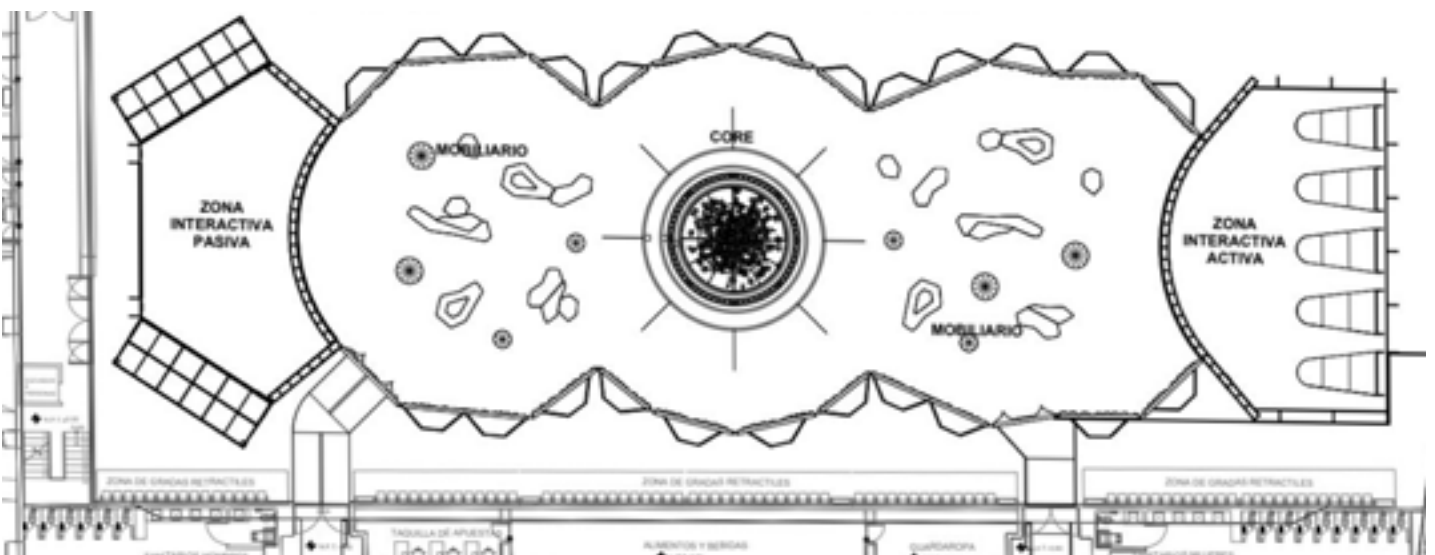
From the richness of the textures the audience can see and touch, to the Music and sound Design, all works together to support Frida's paintings.

The recurring dualities in Frida Kahlo's work - life / death, joy / pain - are reflected in the physical elements of the experience: a light cloud of hand-made silk flowers and heavy drops of blood made of blown glass, coexist at the center of the experience. In the same way, the interactive areas and other elements offer immense possibilities for the digital and the physical to coexist through people.

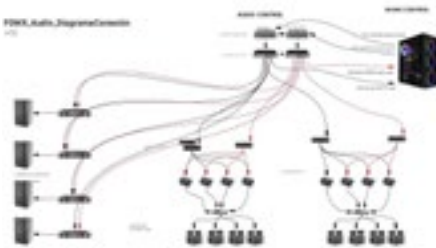
Using highly specialized artisan processes, the Set Design team created a completely immersive space.



- 26 monumental +21ft tall canvases in the form of shawls and dresses.
- 1 kinetic cylinder.
- 1 sculpture with +650 elements.
- +100km of hand-dyed laces.
- +3 tons of sand.



Audio



The music on an immersive experience became the emotional heart of the journey, that's why it's so important to create a playback system that can spatialize in a 3D environment but that is also capable of making the technology disappear from the eyes and ears of the audience.

The audio system for Frida is a combination of multiple P.A. "stacks" with separated tops to create a bottom layer at floor level, and a top layer above the 7 mt. canvases, as well as specific sound design speakers surrounding the room between the projected walls and a "halo" of speakers mounted on the grid. We needed a very flexible system to give the creative director the chance to extend or cut visual sequences of the show, but keeping our timeline always updated and in sync. We built a custom playback system inside Max MSP, receiving OSC messages to playback both smpte attached files and triggered sounds. It is the timecode master of the experience but is always listening to show control.

A spare second computer listens to the main at all times and is capable of a hot-swap if the main stops working.

- 51 speakers on a Dante network, surrounding the audience on a 3D layout.
- Reactive sound design and spatialization following visual particles.
- Custom playback system capable of listening to Show Control as an "orchestra director".
- 5 studios, 20 musicians, 3 music producers, 1 MAX programmer, 1 coordinator, and a Oaxacan female orchestra.



Storytelling



The Storytelling process in the creation of Frida: the immersive experience, consisted primarily of two aspects:

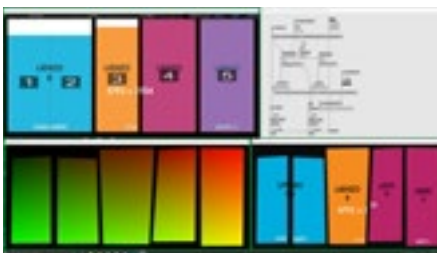
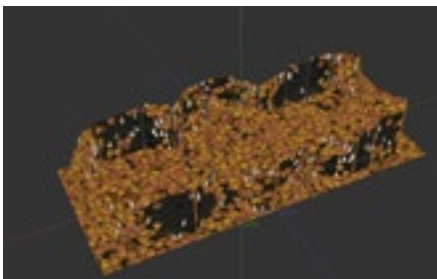
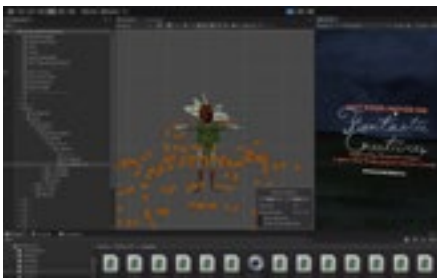
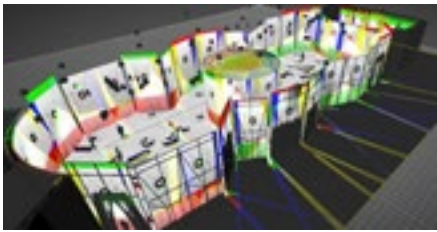
Generating in-depth research of Frida Kahlo's life and work, for which the team relied heavily on academic consultants as well as a vast bibliography. This material helped shape the general narrative of the experience and make informed creative decisions, as well as offer the audience context and relevant information on Kahlo's life and on the paintings that appear in the experience.

The development of a cohesive narrative that served as a unifying, storytelling thread for the experience. In order to achieve this, the Storytelling team worked closely with the Creative Director in the development of an emotional journey that took into consideration the context of the paintings and of Kahlo's life, and yet told a story not through facts, but through a range of different emotions, conveyed through animation, set design, interactive zones, lighting, music, sound design, as well as audio excerpts from Frida Kahlo's own writings.

These two aspects resulted in:

- The production of script-like material that served as a guide for the rest of the teams.
- Working actively with other creative teams in their interpretation of the storytelling elements. Supporting their processes with research material.
- The production of the script for the lobby video, as well as printed lobby information.
- The production of content for the mobile App - an experience guide for the audience - where they can find information on Frida Kahlo's life and context about the paintings.

Technology



The Frida Immersive Experience has a best in class show control system developed in-house at Cocolab. This system focuses on frame accurate synchronized video playback across a cluster of render machines. The show control system outputs full-scale room projection mapping (including floors and walls), along with synchronized communication with the audio and lighting systems. The playback system supports a combination of traditional baked media as well as real-time particle systems. The real time elements function as “takeovers” for the entire space.

Using a combination of layer based compositing and timeline mechanics, the Frida Show Control system has the flexibility of a non-linear editing system and a compositing engine that makes programming the show intuitive. The main exhibition space currently features over 66 projectors; the Frida show control system allows for both grouped and individual calibration control of projector channels and operational controls (power and shutter control). The system currently supports a combination of both cold, warm, and hot spares guarding against any combination of possible disaster scenarios.

Interactive installations in the ancillary spaces, dynamically incorporate sensing and direct user interaction to create engaging experiences for audiences of all ages. Overall, the Frida Immersive Experience hosts a breadth of technological innovations from the main show system to the game-like installations that re-imagine the world of Frida Kahlo.

- 17 computers (including 2 spares)
- 83 projectors (66 in the main space, 17 in the side exhibitions)
- A custom-made deterministic particle system
- In-house projection mapping system (flat and curved surfaces)
- Additional control of audio and lighting systems



Motion



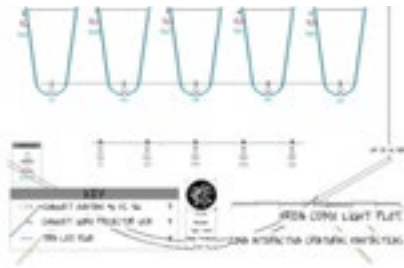
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- **Up of 32 people working in direction, production, art, animation and systems.**
- **The project required people who were highly skilled to work with 2D, 3D, character animation, textile and particle animation.**
- **Some renders took 7 or 8 hours, while others took up to 2 or 3 days for a single scene.**
- **Around 3.5 terabytes of data were generated for the show.**

Lighting

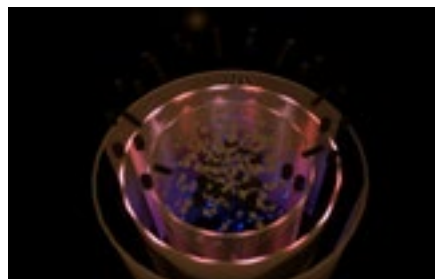


Light has always a dramatic effect. Frida is not an exception. Although there's light carefully designed all around the Expo, the kinetic cylinder is the star of the show. With more than 30 lighting devices and 300+ pixel LEDs, the CORE follows Frida's emotion throughout the timeline of the experience. Changing not only with the digital content projected all around the room, but also with what we hear Frida say and the important experiences she lived at the time she painted specific pieces.

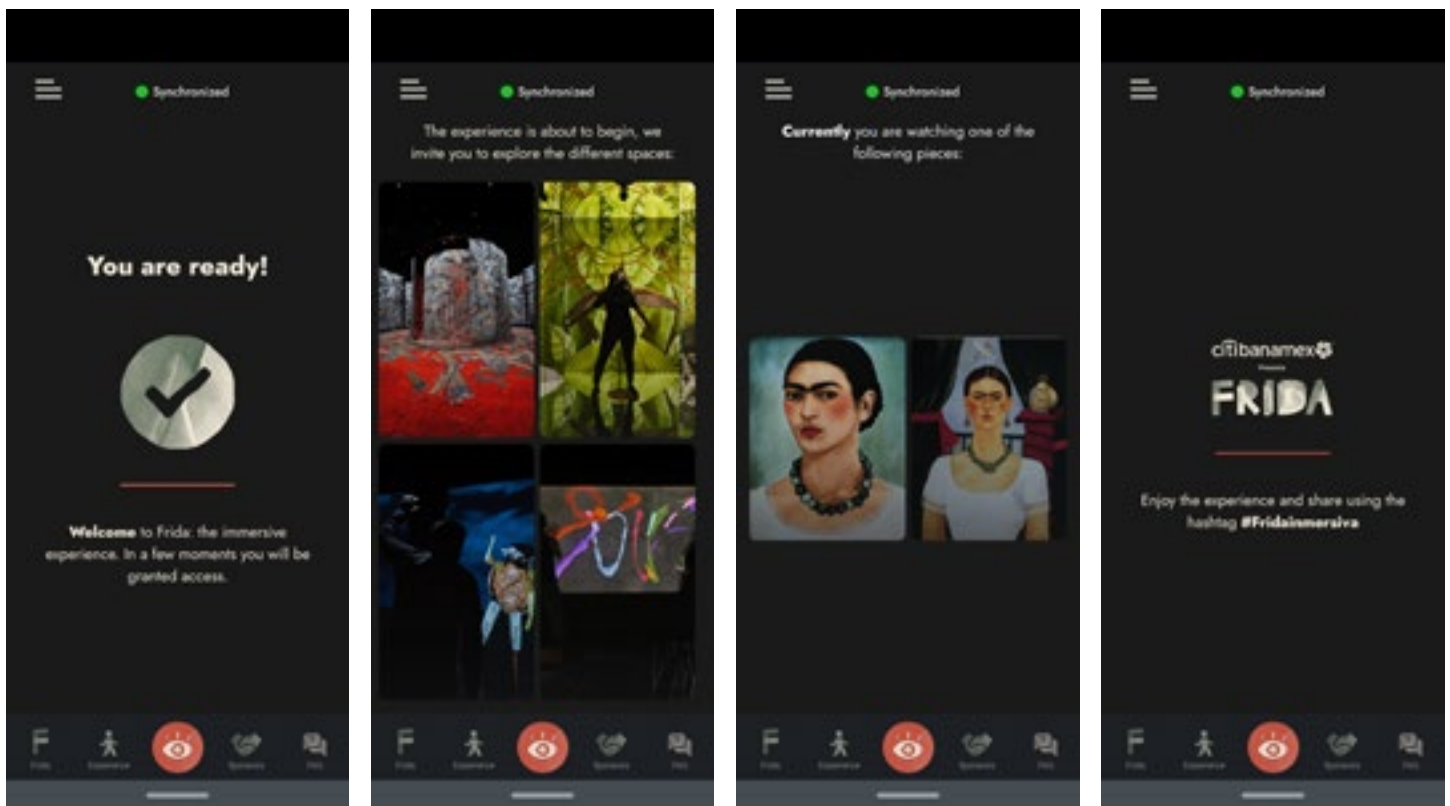
The interactive rooms have strict requirements. The light had to be enough for people to see the floor and possible tripping obstacles, but also we couldn't have it bleed through the string curtains. The solution was to keep 5 lighting devices with foliage gobos in darker, colder colors to achieve a night, foresty look that paired very well with Frida's aesthetic.

At the entrance corridor, we have small light sources hidden behind a grooved wall. These grooves, let light pass as thin lines that breathe that remind us of all the string curtains we have all around the Expo.

- 73 fully programmed lighting devices.
- 300+ pixelled LEDs inside the flowers and blood drops of the sculpture.
- Grand MA lighting console programmed to listen to timecode.



App



The app was designed to work as a companion to the experience and to bring more information about the life and work of Frida to the guests.

It was developed using the multi-platform framework React Native. For the synchronization between the app and the experience, we used an ultrasonic data over audio open source technology called the Quiet Modem Project. This technology allowed us to create several inaudible ultrasonic “watermarks” that the app, using the device’s microphone, could detect and interpret accordingly, successfully creating a synchronized experience between what is being showed in the venue and the app.

The app is available for download in both the App Store and the Play Store for iOS and Android devices respectively.