

# Specification DOC - Uni Project

Hiroshima Castle town immersion :  
On the traces of the Saigoku Kaido



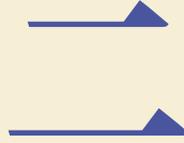
France - Japan

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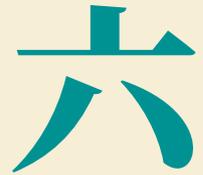
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# DEMAND ANALYSIS

## **A. The sponsors**

The sponsor of the project is the Machinaka Saigoku Road Promotion Committee whose aim is to promote Saigoku Road through various activities. This association was established in 2018 and is supported by Hiroshima City Council.

Its mission consists in creating an «oval new axis of liveliness» that connects the «Hiroshima Station area» and the «Kamiyacho / Hatchobori area». The objective of the reconstruction of Saigoku kaido is to spread the bustle of both districts, which are the core of the east and west of central Hiroshima, to the entire city.

Naoko Wada is the intermediate between the university and the committee. As the Machinaka Saigoku Road Promotion Committee is supported by Hiroshima City Council, our project needs to get approval from the public sector.

## **B. Reformulation of the request**

Our team has been commissioned by the Machinaka Saigoku Road Promotion Committee to highlight this Saigoku Road through the ancestral culture of Hiroshima. The Saigoku Kaido (Western Road in Japanese) was a historic road that passed through the castle city of Hiroshima, which developed over time from the Edo period to the pre-war period. The Saigoku road can be observed in many parts of Japan today, but the area in Hiroshima is difficult to recognize because the city center was destroyed by the atomic bombing. Thus, this road is not well known even by the residents of Hiroshima. Yet, it is an integral part of Hiroshima: some traces of its past are still visible as of today (ruins of bridges, towers, ...).



# CONTEXT & MARKET RESEARCH

## A. The Heritage and Tourism Market in Hiroshima

### 1. Focus on Hiroshima History

As our project focuses on the culture and history of Hiroshima, it is essential for us to be interested in it. Hiroshima is the most important city in the Chûgoku region with more than one million residents. The city is universally known for the massive bombing of August 6, 1945, but beyond the bomb, Hiroshima has a rich ancestral history that needs to be highlighted. After analyzing the demand, we focused on several elements:

**When:** The Edo period. From 1603 to 1868, this period was characterized by economic growth, strict social order, isolationist foreign policies, peace, important urban development and thriving popular culture.

**Where:** The passage of the Saigoku Road in the “Castle-Town” district. At this period, his place was full of life and there were a lot of shops. This street corresponds today to Hondori street.

**Who:** The Chōnin (craftsmen and merchants). The residents of the “Castel-Town” district were the chōnin, which had a decisive influence on economic growth and played a key role in the development of Japanese cultural products such as ukiyo-e, rakugo and contemporary handicrafts.

During the Edo period, due to the appropriation of culture by merchants, the first city chronicles and genre paintings «fuzokuga» illustrating popular daily scenes, appeared. The engraving below, found on the tourist guide of the Machinaka Saigoku Road Promotion Committee, will serve us as a basis for our concept. We showcase Japanese art of the Edo period through illustration and graphic style.



*Folding screen of Hiroshima Castle Town during the Edo period, c. 1805 [artist unknown] Hiroshima City Library / Public Domain*

## *2. Tourism and Culture in Hiroshima Today*

In spite of its destruction, the city of Hiroshima has been able to highlight its culture and there are many tourist places. Hiroshima has two World Heritage Sites: Itsukushima Shrine and the Dome of the Bomb. Another well-known site is Hiroshima Castle, which is located in the center of Hiroshima, in the emblematic district of the Edo Period, but it only holds a few old buildings, many of which were destroyed by the atomic bomb. There are many museums in Hiroshima, including paintings of famous artists, contemporary art, historical exhibitions... The city has nowadays a large part of dark tourism and memorial tourism. Hiroshima counts on culture to restore the city's image but not only on memorial tourism.

For instance, several traditional festivals of various kinds take place during the year, like the Ebisu Matsuri festival or the flower festival. There are other cultural festivals highlighting contemporary culture, for example the Japanese Animation Film Festival. Finally, gastronomy is also a big selling point for tourism.

Thanks to this work on culture, today, the city is one of the top tourist destinations in the entire country. The city uses digital technology for tourism. Its website «explore hiroshima» is made for foreign tourists. Digital is also used in these cultural places: for example, the 360° view of the Atomic Bomb Dome using augmented reality cameras.

## *3. The difficult context of health crisis*

The Covid-19 crisis that is currently affecting the whole world has a major impact on tourism. With nearly 100,000 positive cases detected as of 29 October 2020, Japan is not spared.

The Japanese government has implemented a total ban on entry to Japan for any non-Japanese who have stayed in a list of 156 countries. However, the Japanese authorities have decided to partially and conditionally reopen their borders as of October 1st 2020.

However, the pandemic has led to a boom in local tourism. As Japanese people can no longer or should restrict travel outside the country, they now travel within their own country.

## B. Market Research on Virtual Reality

### 1. Immersive experience and culture

Currently, museums, art and meditation are undergoing a change. Indeed, these areas are increasingly focused on the visitor experience, particularly on his sensory experience. Thanks to digital innovations, mainly graphic technologies (3D images, animations, sounds), this experience is all the more powerful as it is immersive.

It is now common to come across a helmet in the middle of an empty space during an exhibition. For the spectator, art is more than ever a way to escape from everyday life. And it's also a way to feel sensations in a three-dimensional world as sound and movements, while the user may even sometimes walk through. Virtual reality promises a sensory immersion at a level never reached by other medium. It has been proven by neuroscience that 3D engages and immerses the user further because it activates the centers in the human brain that coordinates vision, body and touch. Through RV, it is also about body sensoriality, because the user builds his own experience by moving his body. Thus, the senses would be solicited to create an emotional link, between the artificial universe and the user.

But RV is not only a technical medium, it is also a new medium in its own right. Language and codes are redesigned. For example, the feeling of identification, of "personal" experience being stronger, it is preferable to privilege stories involving few characters. The sight is modified too since we move from a screen with a limited field to a 360° degrees view. Finally, these experiences must "take into account the uses and cultural and social practices of the subjects" who enter these immersive digital environments (Philippe Bonfils).

Virtual reality artists and researchers believe that immersive arts allow us to go beyond the limits of time and space. According to Fabienne Tasi, the goal of RV is therefore to "reconnect with enchantment, to take the spectator into an experience that engages all his senses". Thus, through this project, our goal was to use immersive digital technologies to "immerse" the user in a past that is difficult to see, touch and grasp. Our goal is to make the link between the past and the present by offering the possibility of a human dream : time travel.

« Si l'on n'avait aucune sensation, on ne pourrait rien apprendre ni comprendre. » Aristote  
Traduction : 'If you didn't have any feelings, you couldn't learn or understand anything.' - Aristotle

## 2. Supply Analysis: the VR market

Use of virtual reality (VR) is growing in many fields, health, education, real estate, video games and many more. Globally, the installed base is expected to experience an average annual growth rate of nearly 50% between 2019 and 2023, reaching 113.9 million units by the end of 2023. "Idate Digiworld" predicts that 42 million headsets will be sold worldwide in 2023 alone for both virtual and augmented reality. In value, the global market for AR / VR headsets is estimated at 5.6 billion euros in 2019. It should soar up to 20.6 billion euros in 2023 shared equally between both types of devices. The United States dominates the market for the moment, with an estimated 3 million headset sold in 2019. Japan is in second place. While China, currently the third market, is however experiencing the fastest growth (75.6% against 44.1% for the USA) and should become the number one consumer in 2021. Regarding France, it is in sixth place. (source: factory-digitale.fr)

There are several types of virtual headsets:

- Wired headsets, connected to a computer or game console
- Stand-alone headsets, working with Android
- "Slotted" headsets, where a phone is inserted to simulate VR.

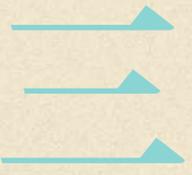
The biggest current competitors are "Oculus" (Facebook group) and "HTC" (Valve). Currently, Oculus dominates the market. A wide range of products and better value for money have allowed them to reach this position.

## C. Benchmark : example of use of VR in culture

Place	Solutions	Highlights
Australia	Offered by the Australian tourist office, VR videos allow you to visit the country virtually, with the aim of giving a taste to the landscape and thus to encourage tourists to come and discover the country.	The idea of visiting from abroad, which can serve as a tourist promotion.
United States	The Mid-Century Modern in the Ozarks: Fay Jones and the American House Project looks to bring the houses of Fay Jones, now largely unknown and inaccessible, to a wide public audience. Through interactive timelines, maps, and 3D virtual tours.	The project is Unity driven and it's pretty much the same that we want to achieve here, that is to say, make accessible to a wide public some specific places of the Saigoku Road during the Edo period.
Finland	The national museum of Finland offers an experience that took place in 1863 in the Diet of Finland, the legislative body that existed from 1809 to 1906. The user can visit the scene depicted in the R. W. Ekman's painting The Opening of the Diet 1863 by Alexander II and can interact with the NPCs.	The idea of visiting in virtual reality places at a certain time (Here during the period of Diet of Finland, us with the Period Edo in Japan).
France	During the Strasbourg European Fantastic Film Festival, Ina organized its first VR challenge in 2018. Three multidisciplinary teams of 5 creators will have 48 hours to create a 360° video from cult and inspiring images.	Create an VR experience in team in a short period of time.
France	«Virtual Room», the first VR collaborative game opened in Paris, allows you to cross eras and universes, the time of a series of enigmas.	VR experience that allows you to immerse yourself in a different era.
Japan	A Japanese temple-born priest turned IT-specialist and an Edo-specialist/3D computer graphics designer created a VR experience that allows to be immersed during the Edo period.	This VR experience is very similar to what we want to achieve: being able to visit the Saigoku Road during the Edo period.
Japan	Shibuya RV Park in Tokyo offers many activities exploring the possibilities of virtual reality. Nine different video games are thus made available to visitors, more or less immersive and intense.	To be able to access VR experiences and materials easily in public places.
France	In 2019, The Palais de Tokyo and Fisheye magazine inaugurated the Virtual Palace. This space is dedicated to works in virtual reality. It is the first time in France that a museum has dedicated a permanent place to this technology	A museum creates a space dedicated to VR. We also want to make our RV experience accessible from a museum.

## D. SWOT analysis of the project

Strengths	Weakness
<p>The bloom of art during the Edo period, that can inspire and be highlighted by contemporary creators (paintings «fuzokuga», “ukiyo-e”, Kabuki...)</p> <p>The rich history of Saigoku Road, that shows the society of the Edo period : a lot of elements for the storytelling</p> <p>The expansion of VR, in the Word and in Japan</p> <p>Project carried by the city council, which has a strong cultural policy.</p> <p>Our team is composed of different profiles with different experiences</p>	<p>A city highly linked with the dark contemporary history with the memorial and dark tourism.</p> <p>The language barrier between us and the sponsor</p> <p>The slow communication speed between the sponsor and us, due to the distance and the numbers of collaborators</p>
Opportunities	Threats
<p>The increase of local trips due to Covid 19</p> <p>Edo period is a part of history with small visual presence in the city which justifies our VR experience</p> <p>The strong demand for cultural heritage</p> <p>The growing fascination for immersive technologies</p> <p>The ability of the vr to immerse the user in the past</p>	<p>COVID-19 : health regulation and the lack of foreign tourists</p> <p>Clichés about Japanese culture in our european popular imagination</p> <p>The actual street is really busy, contemporary, and full of shops : we have to communicate and adapt our experience in this place.</p>



# PROJECT PROPOSAL

## A. The concept



From the document provided by Machinaka Saigoku Road Promotion Committee, and through our internet research, we came to the decision to focus on the «Hiroshima castle town» of the Edo period as to highlight the importance and the effervescence of Saigoku Road, which corresponds today to the Hondori Street

### **Educational objective**

To do so, we wanted to create a VR experience where the user would get to visit Saigoku Road, hear or read about its history, witness its aspect from the Edo period and have the ability to make some limited interactions with the scenes. The objectives are the following : educate the user on the history of Saigoku Kaido and Hiroshima, entertain them with an immersive VR experience and spark their interest to visit the road in real life.

### **Immersive and interactive experience**

To increase the immersion in this experience, there will be a Japanese voiceover. First, the user is invited by a narrator. We imagine a person accompanying and recounting life during the Edo period, while exploring along Saigoku Road. This narrator will act like a guide from the Edo Period and provide explanations..

The user chooses when to move on to the next event or scene or whether to ask for extra details or not. We also want to set up an interaction with certain objects of the scenery in order to trigger 2D comics related to the object found. There will be three scenes in which there will be at least one object of interaction. The user will be able to consult an anecdote about the road of Saigoku through these objects with illustrations inspired by traditional Japanese art styles.

### **Temporal experience in museum**

The experience will be limited, like a temporary exhibition. We recommend launching the experiment in early March, during the spring, so that the sponsor can familiarize with the product.

This experience will be available for one month, and may be extended depending on success. The VR headset should be available in a closed cultural place, such as a museum or exhibition hall, if possible not far from Hondori Street.

For example, the Raisanyoshiseki Museum (頼山陽史跡資料館), located 5 minutes from Hondori Street located. Furthermore, it's interesting because it is a local history museum about Rai Sanyo, a Late Edo Period scholar.

## Scenography

The application will be displayed in a museum. Ideally there will be a room dedicated to it. On the walls there will be panels that will lay out information on the Edo Era and our drawings will also be exhibited on the walls.

If we take as example the photo below, there would be in the room : some desks with the VR set and a screen above to display what the user sees.

We were thinking of decorating the tables with our theme : the color of Japan, some bonsai etc...



Eventually, if the experiment works and is successful, it could be available in museums in other countries. For example in France or in English-speaking countries. In this case, the storytelling would have to be translated. Moreover, Japanese arts are of increasing interest to occidentals. This could serve as an advertisement for tourism in Japan.

## B. Targets and personas

Our virtual reality application primary targets are :

- Teenagers and young adults with an appeal for culture and immersive experiences.
- Adults and families interested in the history of their region/city and that would enjoy the playful side of the experience.

Our secondary targets are foreign tourists attracted by Japan's ancestral culture

### Persona 1

Aya Suzuki || 38 years old || Nurse



Areas of interest :

- Cultural History
- Yoga

Aya is a 38-year-old middle-class woman. She lives with her husband and two children in Mihara, about an hour's drive from the city of Hiroshima.

Aya is a nurse and likes to relax from her tiring days when she comes home. That's why she likes to practice yoga several times a week. Being very curious by nature, she loves to immerse herself in history books and documentaries, especially on the cultural history of her country, Japan.

One morning, she finds in her pile of mail a flyer about a new digital experience dealing with the city of Hiroshima and more specifically the road to Saigoku. Excited at the idea of enriching her knowledge and testing a virtual reality headset for the first time, Aya decides to test the experience on her next day off.

## Persona 2

Yukiteru Amano || 17 years old || High school student

Areas of interest :

- Digital
- Video games

Yukiteru is a 17-year-old teenager living in Hiroshima. Like many young people of his age, he is passionate about video games and loves to meet his friends to play together. In addition to that, Yukiteru has a strong attraction to digital technology, so after high school, he would like to go to university to study computer science.

It was during a class at his high school that one of his teachers told him about the new virtual reality experience taking place at the city council. On his way home from class, he noticed manhole covers decorated in the Edo period. Very intrigued and always willing to try out new technology, Yukiteru decided to try the simulation this weekend.



## Persona 3

Tom Davis || 24 years old || Young Graduate

Areas of interest :

- travel, road trip
- Japanese culture

Description :

Tom is a young 24 years old american man who recently graduated with a Master's degree in psychology. In his free time, he loves to walk around and clear his head while surrounded by nature.

His passion for Japanese culture began as a child, when he was offered his first manga. Several years later, Tom acquired knowledge about the Japanese language, food and the history of the country. Fond of travelling whenever he has money on hand, he has already been to Tokyo once. Falling even more in love with this country. He now dreams of going back there.

While researching about the Edo period and on the pilgrimage of the saigoku road, he discovers that Hiroshima city council offers a digital experience around it. Tom, without hesitation, knows that it will be his next destination.



## C. Visuals inspirations

### 1. Atmosphere and 3D sets

We have various interesting elements to highlight and model. To recount the urban society of the period we focus on the Chonins (craftsmen and merchants class). We will thus model shops, buildings and bridges from the Edo period that sometimes have disappeared.

Here are the main visual inspirations for the main gate (Omote Gate «表御門») and the other 3 gates (Tatemachi Gate “立町御門”, Manabe Gate “真鍋御門”, Icchome Gate “一丁目御門”) Japanese Edo Style stall.



Each one the gate is directly on the road, making their surroundings quite open and active. To limit the amount of work we decided to design each area with a limited navigable space and to select the most important elements to represent.

Additionally, when possible we make use of a few free assets for common objects such as trees. We have to make sure their styles match our scene's and to respect the conditions stipulated by the model authors if there are any.

We need to make each scene distinct in its appearance to better highlight the different kinds of places and atmosphere surrounding the gates. The scenes will not be directly assembled with the 3D objects: instead the look of each will be planned and described using specifications from the storytelling team and concept art made from the 2D team. The concept art is featured in the game itself in the location selection menu. Having 3D scenes that heavily resemble their 2D counterparts means that the user can recognise the icons if they are already familiar with the given scene and vice-versa.

The idea of using a low poly art style was chosen early-on in the project. Ultimately we decided to opt for a more standard and generic style for multiple reasons:

- Adapting the architectural style seen in these scenes into low-poly would take more time than taking their designs as is.
- One of the goals of the project is to stay accurate to history, which is partly achieved by not straying too far away from photorealism.
- Finding low poly free assets could have been more difficult depending on the objects needed

Naturally this came at a cost: a higher polygon count leading to a more precarious balance between performances and model details.

## 2. Illustrations of the different gates

For the illustrations of the different gates, the style is inspired from the ukiyo-e art and the manga art. Our comics style will be a mix of both.

Ukiyo-e art literally means “pictures of the floating world” because it consists in representing subjects such as female beauties, travel scenes and landscapes with woodblock prints and paintings. It became a very popular art in the 17th in the Edo era until the 19th century.

Our main reference has been “Prosperity of the Fish Market at Nihon-bashi” by Utagawa Kuniyasu. We were inspired by the outfits of the chōnin on this woodblock print to create the outfit for our guide. For the choice of colours, we kept in line with the colours of our graphic charter.



Manga are comics or graphic novels originating from Japan. Most manga conform to a style developed in Japan in the late 19th century, and the form has a long prehistory in earlier Japanese art. There are a lot of categories and artline styles and manga can also be adapted into anime. Many manga are translated into other languages. Since the 1950s, manga has become an increasingly major part of the Japanese publishing industry.

The illustrations that we integrate in our application are inspired by the Studio Ghibli art style.



### 3. Sound Inspirations

For sound inspiration, we plan to put a background music based on shamisen, a traditional instrument during the Edo era. For the voices, we use japanese dubbing to preserve the immersion of the user.

Some music :

[https://www.youtube.com/watch?v=iJhIX6Lkq\\_Y](https://www.youtube.com/watch?v=iJhIX6Lkq_Y)

<https://www.youtube.com/watch?v=s7VD9spSwQ0>

## C. "Hiroshima Castle town immersion : On the traces of the Saigoku Kaido"

### 1. The Script

As seen above, the goal of the expérience is to make the visitor travel in time ; during the Edo Period on Saigoku Road, in the castle town. So the user will be immersed in this urban universe made by traditional wooden stores and emblematic handicrafts of the Edo period.

Synopsis : "Imagine... being immersed four centuries before ago in the castle town of Hiroshima during the Edo Period. You find yourself on the Saigoku Kaido highway, in the middle of the urban society. Discover the chōnin culture and the busy daily life of this prosperous period."

Tone of speaking : Like an old wise man telling a tale, remembering his daily life at this time.

Composition : We are thinking of presenting 3 different scenes from the urban daily life in the Edo period. There will be points of interest where the user will be guided with stories. The stories will be about the Saigoku Road, and especially about the exchanges. The user will be greeted in a hub. He will find plates corresponding to each explorable place. He will be able to select the place he wants to visit :



#### Itchōme Gate

Itchōme Gate was one of the most frequented gates. Indeed, it was a place where people from the east side, from the Motoyasu River, and people from the markets crossed each other. We find all kinds of people, inhabitants, merchants, but also pilgrims from the Saigoku Kaido. In addition to this iconic animated crowd in the duality of the calm of the river, it was a famous place because the gate gave access to the Hiroshima Castle inner town. The vivacity of this place is a landmark representing the rich history of Hiroshima City.

#### Manabe Gate

The closer you get to Manabe gate, the more you will be transported by the smells of the market. Indeed, both inside and outside the castle walls, the street is crowded with all kinds of goods. Beware of the call of food: there are sweet, salty, umami-tasting dishes, these are just waiting to be tasted. But there also the scent and textures of different fabrics that attract your attention. All your senses are solicited. There is also room for spiritual people because in this area, in addition to the sweets stands, you can find buddhist altars marking the Edo period. This is where the urban essence is at its peak.



## Tatemachi Gate



The surroundings are a little less active than the previous gates. This place is similar to what you could call a park, featuring benches and more vegetation than usual but houses can still be found just beyond. The trees are neatly planted in rows parallel to the main direction of circulation while the benches are spread less evenly in a way that fills the gap that would be empty otherwise. On one side of the street is an intractable bench that makes the visitor sit, letting him take in the view of the opposite row of trees, the gate on his left and buildings all around. On the opposite side is the interactable book on a bench. It is left open to attract the visitor's attention.

Once the user chooses the place he wants to explore, he will be redirected there. In each place, he can interact with certain objects. When it is taken in hand, an illustrated anecdote appears.

### 2. The user's guide

According to these ideas, our narrator will come from this period. We imagine an old chonin born in Hiroshima.

Name : Nishikawa (Inspired by Nishikawa Joken (1648-1724), Confucian scholar, moralist, geographer, and merchant)

Social class : Chonin

Age : 71 years

Temper : calm, sage, reasoned, mischievous, caring, pedagogue

Role : guide and instruct the user, to make him discover his life in Hiroshima during the Edo period.



### 3. The storytelling

“ Hiroshima Castle town immersion : On the traces of the Saigoku Kaido” immerses you in the Edo period, in the old streets of Hiroshima and more particularly known as Hondori street today. You are accompanied by a descendant of a famous merchant family of the time who is proud to tell the story of his city. Equip yourself with the virtual helmet, let yourself be guided and immerse yourself in the stories that blend into the pilgrimage of the saigoku road. We wish you a good exploration! “

#### The First Journey

The Narrator speaking :

Hello dear traveler, welcome to Hiroshima. I heard that your curiosity about our beautiful city has led you to meet me... People call me the old wise man, but let me introduce myself, I am Mr.Nishikawa. I'm the guide of Hiroshima for curious spirits like you.

I have been a member of an old merchant family for centuries. Thanks to that, I was able to educate myself and become one of the most enlightened scholars of my time. Thus, I am the most suitable man to guide you in your exploration.

I'm glad that you're interested in the history of our city.

Imagine... being immersed four centuries ago in the castle town of Hiroshima during the Edo Period. You find yourself on the Saigoku Kaido highway, in the middle of the urban society. Discover the chōnin culture and the busy daily life of this prosperous period.

As you can see, if you focus on one of the images and select it, a description of the place is displayed to you. Do not hesitate to read all the descriptions to get an idea of what to expect.

But right now, I think you should start with Ichijō Gate. To select this place, grab the highlighted object with your joystick.

Well, did you enjoy your first exploration ? There's 2 places left to visit ! To do this, do as you did the first time and grab the plate of the place you want to visit.

Wait, wait, wait a second! Once you are in the place you choose, try to interact with different objects that you will find !! You will have some surprises... \*niark niark\*

#### 4. User story

Yukiteru's week finally ended. He goes to the Miyajima Municipal History and Folklore Museum to try out the new VR experience proposed by the Machinaka Saigoku Road Promotion Committee. As He enters the former merchant's Edo period mansion, an employee welcomes him.

Yukiteru asks about the new famous VR experience taking place in the different museums in town. The employee confirms that the experience is indeed proposed here. As it is taking place in the museum a small fee of 170 yen is required in order to access the experience. As Yukiteru pays the entrance fee, the employee indicates the dedicated room for the experience.

Yukiteru is excited and goes straight to the room - of course He will visit the remaining part of the museum but that can wait ! Luckily for him the previous visitor just finished the experience. The assistant welcomes him and invites him to sit on the chair. Yukiteru listens attentively to the instructions regarding the VR headset and technical details. As He wears the VR headset, He spawns into a blank room. A traditionally dressed NPC is in front of him.

This is the digital guide that will follow Yukiteru throughout the experience. The guide welcomes him, explains the experience purposes and the different interactions Yukiteru will be able to do. The player is teleported to the hub - the entrance of the experience - in a fade transition.

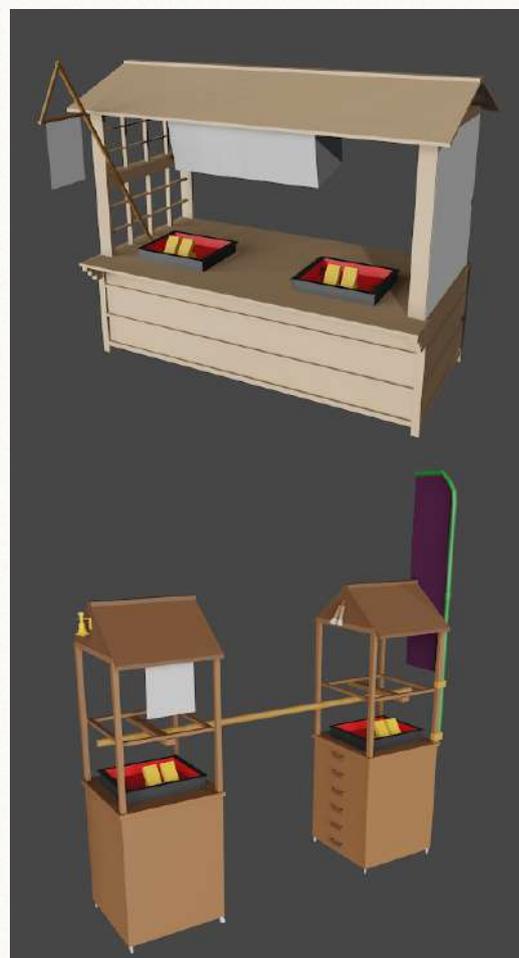
Yukiteru first moved his head in order to see the different elements of the room. Meanwhile the guide continues his speech. After a short time He decides to walk towards the three maps displayed in front of him using the VR controller. Three choices are in front of him. Indeed, the three maps are grabbable objects which will teleport Yukiteru in a scene. The three places included in the demo are the three gates of the Saigoku Road in Hiroshima. Yukiteru hesitates and grabs the Tatemachi map as He knows it is a peaceful area. Yukiteru is teleported in the Tatemachi scene with the same animation.

The virtual guide tells him the story about the Tatemachi gate. As the guide ends his speech, He highlights the book placed on the bench in front of Yukiteru. Yukiteru is amazed about the beauty of the scene and walks around. After a few dozen seconds Yukiteru is interrupted by a message in front of him. "Do You want to enter the Manabe gate ?" asks the message. Of course not ! Yukiteru hasn't seen everything in this scene. He turns back and walks towards the houses. He looks at the details of the low-poly courtyard and house for a while. He then decides to interact with the book as the guide suggested to him. The book contains a few pages of short stories taking place near the Tatemachi gate in the Edo period.

Having finished the book, Yukiteru then wants to go to the Manabe gate as the previously encountered message invited him to. He walks towards the invisible border. At some point He is teleported to the next gate. The scene that reveals itself in front of him is an Edo era market with traditional food stalls and handicrafts. Yukiteru takes a walk around the stalls. He sees NPCs interacting with each other. He tries to grab a vase. The merchant NPC tells the backstory behind the vase. At some point Yukiteru walks towards the end of the scene. He is going to the Icchome gate. After contemplating the last gate, Yukiteru wears off the headset, thanks the assistant and continues his visit of the Miyajima Municipal History and Folklore Museum.

## 5. The immersion - 3D scenes

Here are some of our in progress models for the bridge, courtyard and the stalls :



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COMMUNICATION  
STRATEGY

## A. Audit and Communication Diagnostic

The Machinaka Saigoku Road Promotion Committee has already started to work on the communication around Saigoku Road. For that purpose, they launched the brand “Machinaka Saigoku Kaido” (まちなか西国街道).

### Their Communication content

- Printed document : The Nishikoku Kaido Map. It is a brochure in both Japanese and in English provided to the tourists, with a map and various information about the history of the road. The booklet is based on old documents from each period of Saigoku Road : Hiroshima Castle Shitae print, «Hiroshima Merchant’s Shopping Chronicle», «Enkoku Goro’s Enkoku Bridge New Year», the Hiroshima’s city council printed 20,000 copies of the book.
- DVD of the Saigoku Kaido : Production and realisation of a video to inform people about the Saigoku Kaido

### Medias used

- Website : introduce the history of the Nishikoku Kaido, promote documents and the activities of the association. <https://www.h-saigoku.town/>
- Social Medias :  
Facebook Page : machinaka.saigoku (まちなか西国街道推進協議会)  
Spreading of the brand of the association, creation of events, sharing of historic and cultural informations. [https://www.facebook.com/machinaka.saigoku/?ref=page\\_internal](https://www.facebook.com/machinaka.saigoku/?ref=page_internal)  
Youtube Page : [https://www.youtube.com/channel/UCrDIDbk2Yx8g\\_-hAy8YB2dw](https://www.youtube.com/channel/UCrDIDbk2Yx8g_-hAy8YB2dw)
- Press : Collaboration with local information media (Chugoku Shimbun for example)
- Event : Saigoku Day, which took place on March 14, 2020

### Recommendations

- Develop and multiply channels
- Increase the audience
- Adapt the graphic charter
- Amplify the digital

## B. Communication plan

### 1. Objectives

The communication strategy will aim to attract our targets (that you can see in the previous section) and to make known the Saigoku Road. For this we can analyze various KPIs.

Marketing : Attract visitors	Educational : make known the Saigoku Road	KPI
<ul style="list-style-type: none"><li>- Distribute our Virtual Reality Experience</li><li>- Attract tourists locals and internationals</li><li>- Attract passersby in the Hondori Street</li></ul>	<ul style="list-style-type: none"><li>- Inform about the story of Saigoku Road in Hiroshima during the Edo Period</li><li>- Making people want to immerse themselves in History with the VR experience</li></ul>	<ul style="list-style-type: none"><li>- Number of application downloads</li><li>- Evolution of the number of fans on social networks</li><li>- Number of visits to the website</li><li>- Number of VR headset rentals</li></ul>

### 2. Mediaplanning

#### Communication channels

Concerning the communication channels, we decided to reuse and extend the association's media. As the structure is associative and has links with the Hiroshima City Hall, it will be necessary to use this partnership and the free resources in order to reduce costs. Moreover, as the first target is local, the media will logically be local, for example local newspapers, street marketing to intercept passers-by...

Thus, we will use various medias :

- Press relation : local newspapers (Chugoku Shimbun), local radio (FM Higashi Hiroshima, Hiroshima FM or FM Chupea...), local TV (Hiroshima Telecasting)
- Social medias : use Facebook page and create an instagram account (two of the most used social networks in Japan)
- Website : Cooperation with the web team to show our solution on a webpage dedicated to the VR experience.

- Partenariat :
  - Intensify the partnership with the Civil council So we can diffuse the experience on the cultural and institutional websites or social media. For example : the cultural program of the city, the experiences proposed by the tourist office...
  - A commercial operation with some shops on Hondori Street, like a contest or a competition.
- Event : Inauguration on Saturday March 6, 2021. Invitations of the local councillors, the shopkeepers and the cultural professionals.
- Street marketing : Urban signage and distribution on the Hondori Street
- Mail : Newsletters sent to association's members.

### Communication Supports and contents

There is a need to increase the number of communication media, digital or print, in order to boost the diffusion. So we recommend to create various contents :

#### Print:

- Urban signage : Flyer and poster with QR code. We can also imagine an original content like they did with Hondori's manhole.
- Flyer : Explanatory and illustrated flyer with a QR code in A5 format. It will act as a guide and publicity.

#### Digital:

- Written and illustrated article for the website
- A teaser based on storytelling posted on social networks
- Several visuals in facebook and instagram format (post and stories)
- Press Release
- Advertising spot on the local radio
- Newsletters to members of the association
- Video post event

### Retro planning

We set up a retro planning based on 3 steps: before, during, after the exhibition of our experience.

See Annex

## C. Creation : graphic chart and editorial line

### 1. Editorial line

Clear, attainable, informed but also fun and playful. We want a good transmission about the experience, the storytelling, the cultural and history aspects. As the tone adopted in the storytelling, we will base our communication around our user's guide.

### 2. Graphic Chart

We want to keep an artisanal and ancestral cultural aspect, based on prints, old documents... but more contemporary. We took our inspirations from Bill Mudron's work, as you can see previously in the pictures from the "Atmosphere and 3D sets" part, he painted some scenes from Miyazaki's movies but in a japanese print style. We want to use mostly pale colors but also a few bright colors like a bright red or a deep blue as we can find on traditional japanese prints.

As we said for the poster we used as an inspiration the traditional japanese prints with lights colors, for the manhole covers we used the design Japanese cities use to decorate their streets with cartoon's like characters and brights colors. For the digital content we wanted to make something lightly different with brighter colors and modern design but still linked with papercraft art inspired by origami.

The colors used for our work



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PROTOTYPE

PROJECT

SPECIFICATION

5

## A. VR Device and Game Engine

The project will be exported for virtual reality and will contain a 3D world that the user will be able to interact with. To make such a project, we first have to mention our chosen VR device and the game engine that we will use to create the experience.



### Chosen VR Device:

The project will be exported on an Oculus Quest : a VR autonomous headset that offers the users 6 degrees of freedom (headset's ability to track head rotation and movement in the real world). It's one of the most popular headsets on the market.



### Chosen game engine:

For our project, we have chosen to work with Unity3D : a very popular game engine that most of the team have already used in the past. This engine allows us to put together a world from our created 3D models, and then add interactions that will allow the user to experience this universe.



### Programming language:

The code in our project will be written in C# as it is the official programming language for Unity3D projects.



### Chosen Integrated Development Environment (IDE):

We have chosen to code with Visual Studio, the recommended IDE for Unity development. It's also one of the best IDE for C# programming.



### Chosen collaboration tool :

We will collaborate on code and Unity project files with Git and Github. Git is a proven versioning tool and GitHub is the most popular version control host for Git projects.

At first, we want to develop a prototype of our application, which will include most of the interactions that we want to develop.

Here's a list of the specifications for the prototype :

### *1. Functional specifications*

F0: The application shall allow the user to quit the visit

Description : The user can quit the application by going to a specific area of the hub. The area should be highlighted using the same visual effect that the points of interests have, but in a different color. Entering the area in the hub would quit the application. There is also the option to quit by using the menu.

F1: The application shall allow the user to return to the hub at any moment.

Description : Same as quitting the visit. The user can return to the hub by going to an area of the place marked with a red visual effect similar to points of interest. Entering it would take the user back to the hub.

F2: The application shall allow the user to change the sound level.

Description : The user configures the volume directly from the hardware.

F3: The application shall allow the user to walk around the scene.

Description : The user can walk around the scenes using the controllers joysticks. It's a continuous movement that will be limited by colliders that will define the borders of the scene.

F4: The application shall allow the user to move his head in all directions

Description : Rotating head in real life should also be done in VR.

F5: The application shall allow the user to see his hands

Description : Real life hands should be visible in VR. Moving hands in real life should also move the hands in VR.

F6: The application shall allow the user to grab objects.

Description : The user can grab some specific objects using his controller.

F7: The application shall allow the user to change location through a hub.

Description : Grabbing a card in the hub allows the user to go to an environment. The transition is done with a fade effect. When entering the new scene, the guide appears and starts talking to the user. While the guide is talking, the user's movements are limited to a small area.

F8: The application shall allow the user to choose to go to the next/previous location.

Description : The user walks towards the limits of the current location and is teleported to the next location. The animation is the same as the hub to location animation. If there are no next or previous location.

F9: The application shall allow the user to hear the narrative guide's voice in english/ japanese and see it.

Description : The guide will be a visible character that will share informations with the user with a voice and optional subtitles (to clarify).

F10: The application shall allow the user to have informations on a point of interest

Description : The user goes near the point of interest, then the guide appears in front of the user and speaks to him. The user is free to listen or to go away. If he goes away, after a certain distance, the interaction shall end.

F11: The application shall allow the user to visit three different locations.

Description : Each location will be represented by a grabbable card in the hub, that can send the user to a specific location.

## *2. Technical specifications*

- 1- **User can move around the scene** : get Oculus Quest controllers inputs in Unity and create a physical movement of the user's avatar (avatar = representation of the user in VR). Collisions will limit the user's walking field.
- 2- **User can move his head** : setting up Unity for VR automatically handles that by overriding the main camera with values from the VR headset.
- 3- **User can grab objects** : get Oculus Quest input from the grab button and use Oculus's premade Unity content to handle objects grabbing. When grabbing objects, we will eventually trigger an event.
- 4- **User can see their hands** : get Oculus Integration assets from the Unity Asset Store and use their premade avatar that contains hands tracking and visualization.
- 5- **User can choose to change location through a hub** : create a Unity scene that will be the hub. Rely on the grab mechanics to create interactions that will switch scenes.
- 6- **Narrative guide's voice** : create a system that plays recorded sounds under given conditions.
- 7- **Animation when picking map objects to change location** : use the Unity animator to create a smooth animation for scenes transitions.
- 8- **Three different locations that can be visited** : implement 3 different Unity scenes that will be populated with 3D models and eventually points of interest.
- 9- **User can return at any moment to the hub** : add a return button on the controller that will send the user back to the hub, and add a physical way to exit the area (such as a trigger to enter or a button to physically press).

### 3. 3D Models

First Scene (Icchome Gate “一丁目御門”)(no interactions)

- bridge
- water
- optional: passerby

Second Scene (Manabe Gate “真鍋御門”) : visualisation of the stalls

- stalls
- bridge
- water
- merchants

Third Scene (Tatemachi Gate “立町御門”) : visualisation of the inner courtyard

- trees
- bench
- book

Objects of interactions :

- jar
- stall
- merchants
- book
- bench

Common objects in every scene:

- floor
- the gate

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MANAGEMENT

## A. Team presentation

Our work team is composed of 8 CNAM students and 5 Ingémédia students. We work together and share our experiences in Design, Communication, 3D, or even in Développement.

### CNAM IIM

· <b>Vanessa ASEJO CASPILLO</b>	Project Manager	vanessaasejo@gmail.com
·Adrien ARRA	Unity developer	
·Adrien BONNAMOUR	Unity developer	
·Océane CARPENTIER	3D modeling	
·Thomas CIANFARANI	Lead Unity developer	
·Tony GENTILINI	Storyteller	
·Lucas LEFEVRE	3D modeling	
·Alexandre TOMASIA	Unity developer, Sound designer	

### Ingémédia

· <b>Slim LAZREG</b>	3D modeling	slimlazreg@gmail.com
·Myriam ALILI	Graphic Designer	
·Aurore BOGANIN	2D Designer	
·Alice CARTEYRADE	Storyteller	
·Lauriane NOLOT	3D modeling	

## Our organisation



**Vanessa ASEJO CASPILLO**  
Project Manager



**Alice CARTEYRADE**  
Communication Manager



**Slim LAZREG**  
3D Designer



**Thomas CIANFARANI**  
Lead Unity Developer



**Tony GENTILINI**  
Storyteller



**Lauriane NOLOT**  
3D Designer



**Adrien ARRA**  
Unity Developer

Marketing and Communication

3D Modeling

Unity 3D Development



**Myriam ALILI**  
Graphic Designer



**Océane CARPENTIER**  
3D Designer



**Adrien BONNAMOUR**  
Unity Developer



**Aurore BOGANIN**  
Graphic Designer



**Lucas LEFEVRE**  
3D Designer



**Alexandre TOMASIA**  
Unity Developer

## B. Macro Planning

Steps	Date/Period
Start of the project	End of September
Conception	Octobre/Mid November
Development	End of November to end of December
3D modeling	End of November to the end of December
Integration	End of December to Beginning of January
Test	January
End of the project	End of January

## C. Our management

Several situations make the management of this project a little bit «special»:

- The cooperation between two schools with very different timetables
- Sponsors far away, with a strong language barrier
- A health crisis that makes face-to-face group meetings impossible

Thus, we use several digital tools to collaborate :



## Discord

- Bi-weekly meetings between the two schools using voice chat
- Frequent exchanges on the platform: especially in the general channel
- Our discord is organized in several channels, inspired by the organization of our team

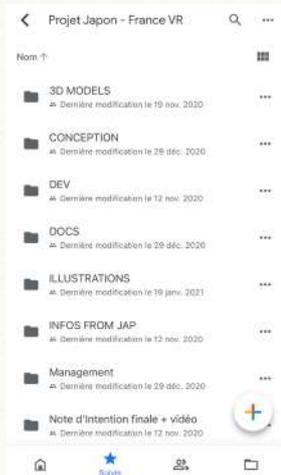
## Whatsapp

Communication between Ingémédiens on Whatsapp to discern the two schools, as this note of intent was for students of Ingémédia



## Mail

To get information from Japan, there was an exchange of e-mails between project manager Vanessa ASEJO CASPILLO, the tree unit managers, Professor Olivia Papini and Naoko Wada.



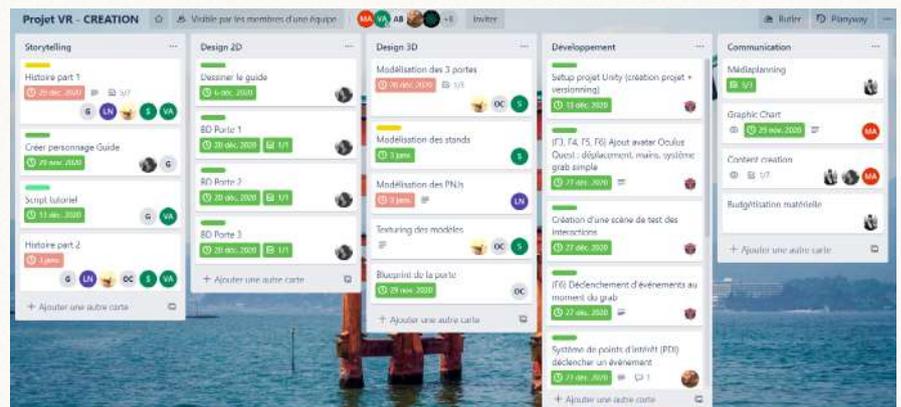
## Google Drive

Where the various files and sources necessary for our projects can be found, but also the reports of meetings, and googles docs for the information sharing, including the creation of the note of intent.

## Trello

We also use Trello; with two boards :

- One for documents (with lists: document to return and documentary resources)
- One to follow the creation (with different lists corresponding to the different specialties: storytelling - 2D design - 3D design - development - sound - communication)



## **D. Provisional schedule and progress**

See annex 2 : VR detailed planning

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## **A. Value of the project**

The project is carried out in the framework of a collaboration between the graduate schools Ingémédia, CNAM IIM and the city of Hiroshima. The budget part is only a representation in case it is carried out in the real conditions of an agency.

See annex 3 : Budget



# **A N N E X**

## A. Retro planning

### 1. Before

	JANUARY				FEBUARY			
	4 -10	11-17	18 - 24	25 - 31	1 - 7	8 - 14	15 - 21	22 - 28
<b>Social medias and web site</b>								
Announcement on Instagram and Facebook								
Creation of fb event								
Posts on Fb page and IG twice a week								
Posts on Fb page and IG every two days								
Diffusion of teaser								
Publication on website								
<b>Press</b>								
Diffusion press Release								
Publications on Chugoku Shimbun								
Spot radio								
<b>Mailing</b>								
Newletters								
Invitation to Inauguration								
<b>Partnetship</b>								
Publication on Hiroshima calendar								
Distribution of flyers in store, civil council and tourist office								
<b>Street marketing</b>								
Poster in Hondori Street								
Distribution of flyers in Hondori Street								

### 2. During

	MARCH				
	1- 7	8 - 9	15 - 21	22 - 28	29 - 4april
<b>Social medias and web site</b>					
Opening event					
Posts on Fb page and IG every days					
Stories in direct of the "exhibition"					
Posts on Fb page and IG every two days					
<b>Press</b>					
Publications of event on Chugoku Shimbun					
Publications of the feedback of experience					
Spot radio					
<b>Mailing</b>					
Newletters					
Invitation to Inauguration					
Relaunch experiance invitation					
<b>Partnetship</b>					
Publication on Hiroshima calendar					
Commercial operation with the Hondori shopkeepers					
<b>Street marketing</b>					
Poster in Hondori Street					
Distribution of flyers in Hondori Street					

### 3. After

	APRIL			
	5 - 11	12 - 18	19 - 25	26 - 2 may
<b>Social medias and web site</b>				
Feedback on Fb page and IG every two days				
Feedback on Fb page and IG once a week				
Modify the website page				
Video post event				
<b>Press</b>				
Publications of the feedback of "exhibition"				
ITW radio				
<b>Mailing</b>				
Newletters				
Acknowledgements				

## B. Provisional schedule and progress

Hiroshima Castle town immersion : On the traces of the Saigoku Kaido		Detailed planning																							
Last update		26/1/21																							
Task		Delivrable	Resources	Workload	State	September				October				November				December				January			
						S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
<b>Start of the project</b>																									
Phase 1	Team Building			1/2 J/H	Planned	9		24																	
					Realized																				
Phase 2	Note of intent	Slim, Myriam, Aurore, Alice, Lauriane		1 J/H	Planned								1												
					Realized																				
<b>Conception</b>																									
Phase 1	Specification Doc	Team (13)		1 J/H	Planned									12		29									
					Realized																				
Phase 2	Guide creation	Team (13)		1/2 J/H	Planned																				
					Realized																				
<b>Storytelling</b>																									
History part 1	storytelling1.docx	Tony, Vanessa, Lucas, Lauriane, Slim, Alice		1 J/H	Planned											29									
					Realized																				
History part 2	storytelling2.docx	Tony, Vanessa, Lucas, Lauriane, Slim, Océane, Alice		1 J/H	Planned																3				
					Realized																				
Tutorial script	storytelling2.docx	Tony, Vanessa		1 J/H	Planned																3				
					Realized																				
<b>Development</b>																									
Phase 1	Unity project setup	Thomas		1/2 J/H	Planned											29									
					Realized																				
System of point of interest (PDI), events trigger		Adrien A		1 J/H	Planned															20					
					Realized																				
(F0,F1) Implementation of PDI		Adrien A		2 J/H	Planned																27				
					Realized																				
Create scene for interaction tests		Thomas		1/2 J/H	Planned												6								
					Realized																				
(F3, F4, F5, F6) Add Oculus Quest avatar		Thomas		4 J/H	Planned																				
					Realized																				
(F6) Event trigger		Thomas		1 J/H	Planned																				
					Realized																				
(F7, F11) Create the Hub		Adrien A, Alexandre		1 J/H	Planned																				
					Realized																				
(F8) Create zone where user can choose the place to visit		Alexandre		3 J/H	Planned																				
					Realized																				
9, F10) Interaction with the guid		Adrien B		3 J/H	Planned																				
					Realized																				
Tutorial in the hub					Planned																				
					Realized																				
<b>3D Modeling</b>																									
Blueprint of 3D models	PNG image	Océane		2 J/H	Planned												29								
					Realized																				
Modeling the 3 gates	.zip	Slim, Lucas, Océane		5 J/H	Planned																				
					Realized																				
Modeling the stalls	.zip	Slim		2 J/H	Planned																				
					Realized																				
Modeling the NPCs	.zip	Lauriane		5 J/H	Planned																				
					Realized																				
Texturing the 3D models	.zip	Slim, Lucas, Océane		1 J/H	Planned																				
					Realized																				
<b>2D Design</b>																									
Designing the guide	.zip	Aurore		1 J/H	Planned																				
					Realized																				
Design of the first gate	.zip	Aurore		1 J/H	Planned																				
					Realized																				
Design of the second gate	.zip	Aurore		1 J/H	Planned																				
					Realized																				
Design of the third gate	.zip	Aurore		1 J/H	Planned																				
					Realized																				
<b>Communication</b>																									
Graphic Chart	Graphic Chart	Myriam		1 J/H	Planned																				
					Realized																				
Communication strategy		Alice		1/2 J/H	Planned																				
					Realized																				
Content creation		Alice, Myriam, Aurore		3 J/H	Planned																				
					Realized																				
<b>Project communication</b>																									
Project start	Launch Meeting	Team (13)			Planned																				
					Realized																				
<b>Project communication</b>																									
Project team meetings				Realized																					
<b>Project monitoring</b>																									
Update documents				Realized																					

dépasse la deadline et pas commencé

dépasse la deadline et commencé

terminé

debut et fin de tache planifiés

planifié

## C. Customer quote/Budget

REQUIREMENT	NB DAY WORK	DAY COST	TOTAL COST EXCL. TAX
<b>CUSTOMER QUOTE</b>			
<b>CONCEPTION</b>			
Development of the project's concept	19	200	3 885,71
<b>2D DESIGN</b>			
Design of the guide	2	210	420
Illustrations of the different gates	8	210	1680
<b>3D DESIGN</b>			
Gates creation	15	205	3075
Mapping of Hondori Street	12	200	2400
<b>COMMUNICATION &amp; STORYTELLING</b>			
Graphic Chart	2	230	460
Storytelling content	5	200	942,86
Communication strategy	5	210	1005
<b>3D UNITY DEVELOPPEMENT</b>			
Application structure	3,5	220	770
Storytelling integration	8	220	1760
3D model integration	3,5	220	770
Japanese dubbing integration	2	220	440
<b>TOTAL</b>			<b>17 608,57</b>
			<b>TVA</b>
			<b>20%</b>
			<b>TOTAL TTC €</b>
			<b>21 130,29</b>
			<b>Total cost in ¥</b>
			<b>2 662 552</b>

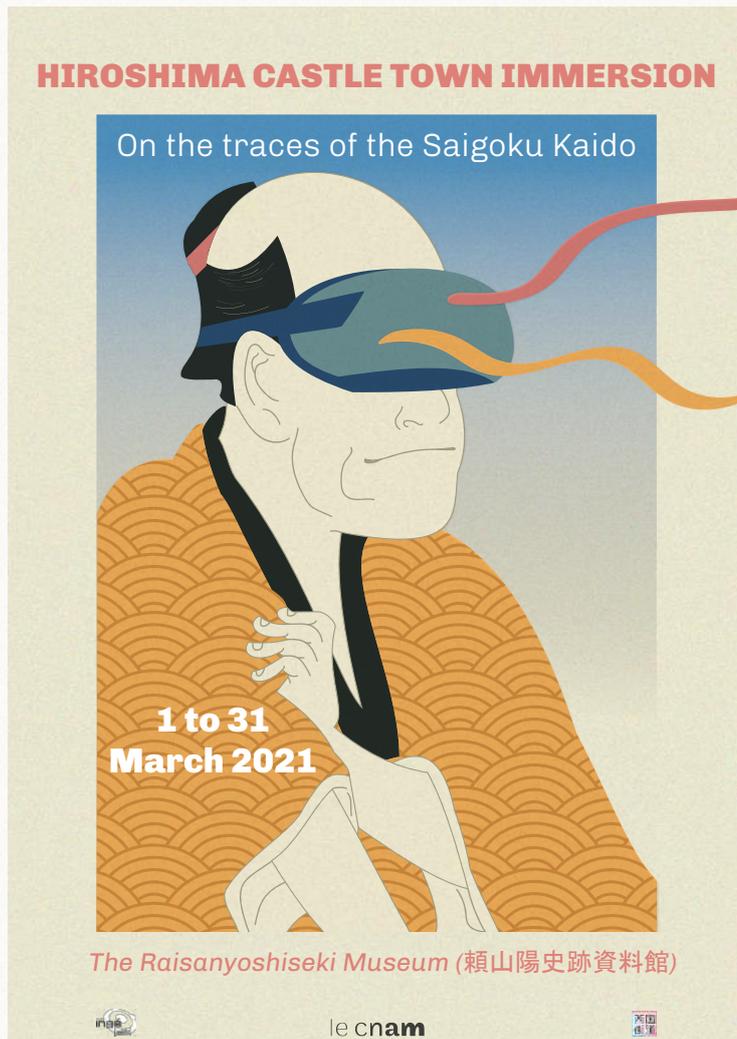
<b>COMMUNICATION - EVENT BUDGET</b>			
Media	unit or day	price unit or day	Total
Press Release	3	100	300
Spot radio	30	85	2550
Printing Posters	50	3	150
printing explanatory leaflet	500	1	500
Urban display		<i>free partnership city council</i>	
	30		0
printing urban signage	15	15	225
museum room rental	30	<i>free partnership city council</i>	
headset rental	30	50	1500
			<b>3725</b>
			<b>469672 ¥</b>
<b>TECHNICAL BUDGET</b>			
software	month	price	Total
Adobe Creative cloud	4	60	240
3DS max	4	264	1056
Blender 3D	4	0	0
Unity 3D	4	0	0
			<b>1296</b>
			<b>163844,86 ¥</b>

POSITION	GROSS SALARY	HOURLY GROSS RATE	HOURLY GROSS RATE
Unity Developer	2 625,00 €	151,67	17,31 €
3D Designer	2 210,00 €	151,67	14,57 €
Storyteller	2 500,00 €	151,67	16,48 €
Community Manager	2 100,00€	151,67	13,85€
Project Manager	2 583,00 €	151,67	17,03 €
Graphic Designer	2 200,00€	151,67	14,51€

35 hours per month

POSITION	NET SALARY	HOURLY NET RATE	HOURLY NET RATE
Unity Developer	2 048,00 €	151,67	13,50 €
3D Designer	1 724,00 €	151,67	11,37 €
Storyteller	1 950,00 €	151,67	12,86 €
Community Manager	1 638,00€	151,67	10,80€
Project Manager	2 015,00 €	151,67	13,29 €
Graphic Designer	1 716,00€	151,67	11,31€

## D. Visual Content



A2 and A5 poster and flyer



Digital Visual for the social media



Urban signage on manhole cover



## Sources

<http://expositions.bnf.fr/japonaises/arret/03.htm>

[https://fr.wikipedia.org/wiki/Ch%C5%8Dnin#La\\_culture\\_ch%C5%8Dnin](https://fr.wikipedia.org/wiki/Ch%C5%8Dnin#La_culture_ch%C5%8Dnin)

<https://journals.openedition.org/extremeorient/702>

[https://www.herodote.net/Le\\_Japon\\_a\\_l\\_epoque\\_d\\_Edo-synthese-166.php](https://www.herodote.net/Le_Japon_a_l_epoque_d_Edo-synthese-166.php)

<https://contact-kryptosphere.medium.com/r%C3%A9alit%C3%A9-virtuelle-et-voyage-quelles-possibilit%C3%A9s-c5ae68da2d19>

<https://www.zdnet.fr/pratique/voyage-dans-le-temps-soldats-connectes-et-medecins-numeriques-vr-et-ar-en-pratique-dans-le-quotidien-des-professionnels-39891659.htm>

<https://theconversation.com/la-fin-du-ne-pas-toucher-lere-est-a-limmersif-dans-les-musees-125097>

Bonfils, Philippe. « Immersion et environnements numériques : une approche méthodologique par l'expérience vécue », *Questions de communication*, vol. 27, no. 1, 2015, pp. 261-277.

Tsaï, Fabienne. « La réalité virtuelle, un outil pour renouer avec la sensorialité ? », *Hermès, La Revue*, vol. 74, no. 1, 2016, pp. 188-199.

Djindjian, François. « Chapitre 3. La restitution virtuelle en archéologie », , *L'archéologie. Théorie, méthodes et reconstitutions*, sous la direction de Djindjian François. Armand Colin, 2017, pp. 533-540.

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