KAIJU SNAP

GAME DESIGN DOCUMENT

DISCLAIMER

This is a working document. The working language is English for all documents and programming. All names and titles are provisional and may change during the project. Values are projections or rough estimates, they may also change during the project. Kaiju Snap is an episodic game. The following informations and documents mainly concern the **first episode** of the series.

TABLE OF CONTENT

GAME OVERVIEW

In Kaiju Snap, the player flies a drone over a few islands with the goal of capturing pictures of gigantic creatures that live there.

The game uses an episodic format. Each episode is settled on a new island, with new characters and new abilities for the drone.

CONCEPT AND INTENTIONS

TECHNICAL SPECS

USP AND KSP

CONCEPT AND INTENTIONS

The whole concept of Kaiju Snap is to mix Marvel and Feeling of Control in one experience.

Through Kaiju Snap, we want to provide a memorable experience for the player, with the ability to fly in VR in a marvelous universe enhanced with a rich story that will keep the player hooked from the first to the last episode.

We also want to make the player feel like this world is living, with mechanisms such as the ecosystems on the island with the different species living autonomously and reacting to each other's presence.

We want the player to feel like he's belonging to this world, with the species reacting to the drone's presence or interactions.

The player will learn the existence of the giant beasts and follow the story of what happened next, episode per episode.

Each island is separated in tracking areas, in which the player will encounter living species of the island and look for giant creatures presence. Creature's zones that are the areas in which the player will actually encounter the giant beasts.

TECHNICAL SPECS

Gameplay	Drone control & Photography
Player	Solo
Platform	Oculus Rift, HTC Vive & PS VR
Public	VR owners and their families
Experience Duration	~2h30 per episode
Rating	Pegi 7+

USP AND KSP

- Photograph gigantic creatures

- New episode: new island & new mechanics

- Fly a drone in VR

3 C

The goal of Kaiju Snap is to make the player experience a marvelous adventure flying a drone over islands. Here we'll show how this experience depends on the characters piloting or operating the flight, the visual aspects of the camera, and the complementary control modes of the drone used to take pictures or flying through areas.

CHARACTERS   CAMERA   CONTROLS

SETUP

PHOTOGRAPH MODE

SPEED MODE

CHARACTERS

For this episode of Kaiju Snap, characters are a journalist duet.

The player is the drone pilot and receives orders from the other journalist. This other journalist has a background in biology. She is the one planning the documentary and wanting to raise awareness about this archipelago and its specific biosphere. The player is in charge of an ecological mission: sending a drone is safer and cheaper, especially in a no-go zone like the archipelago.

The journalist will help the player, giving advice and wildlife analysis.

CAMERA

The camera is a first person view, following the movement of the player's head.

There are 2 kinds of user interface, depending on the current control mode. One is designed to look like a photograph apparatus, and the other one is focused on the speed.

CONTROLS

SETUP

The drone can be controlled in 2 different way.
The photograph mode is designed to take pictures.
The speed mode is useful to travel faster through areas.
Both use a mix between the headset and the pad.
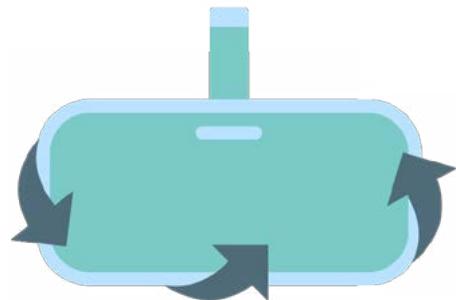
CONTROLS

PHOTOGRAPH MODE

The photograph mode uses the pad to fly the drone, and the headset as a free camera.
The idea is to make the player feel like a photographer able to look around while piloting, seeking for something to photograph.

This idea is enhanced by the low speed of the drone, the interface and the input used to take the picture that is similarly positioned as a camera shutter release. The controls for the drone are similar to a real drone, with the triggers to gain or lose altitude.

Free camera

Pause Menu   Gallery

Decrease Altitude   Increase Altitude

Flash   Take a photo
Upload photos

Move the drone   Hide/display objectives

Switch flying modes

Play Sound Action   Rotate the drone
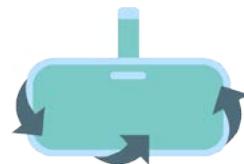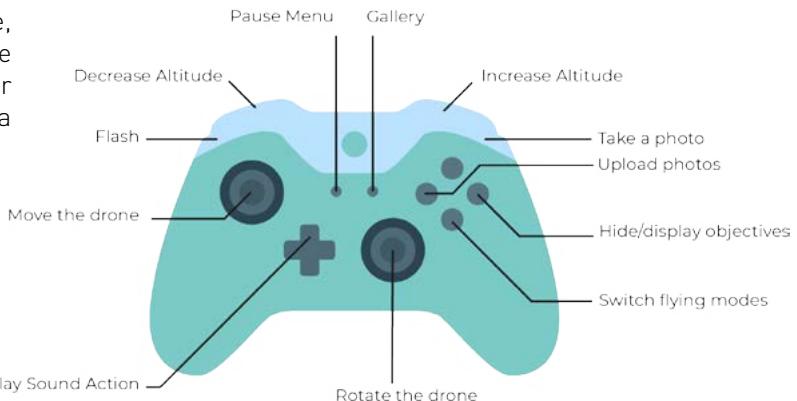
CONTROLS

SPEED MODE

The speed mode uses the headset to fly the drone, and the pad to control its speed.
The idea is to make the player experience speed sensations by making the drone go faster than with the photograph mode.

The drone can't stop, it's only possible to accelerate or decelerate from the idle state of the left stick.
This mode is useful to travel fast from an area to another or follow an animal going away.

The speed mode, especially, gives speed sensations with some visual and audio feedback when the drone flies close to water, floor, branches etc.

Pause Menu

Increase speed

Switch flying modes
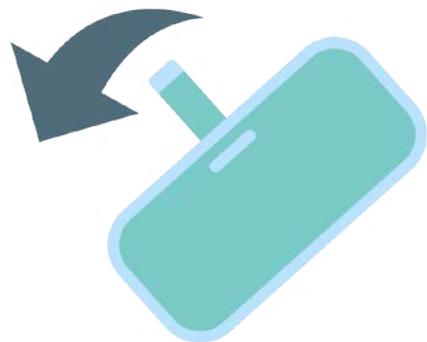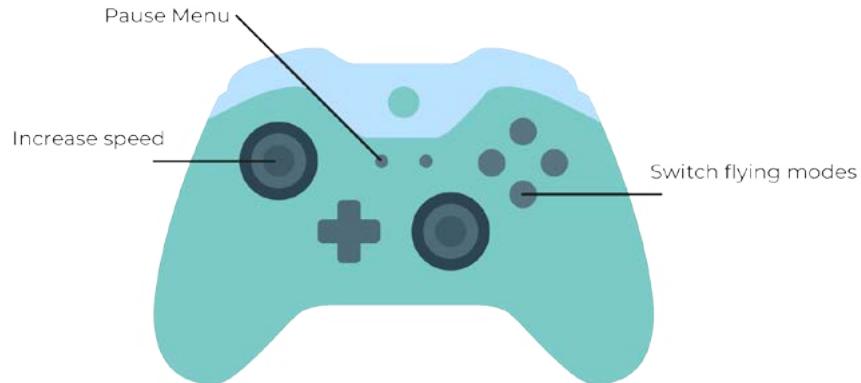
Tilt head to turn
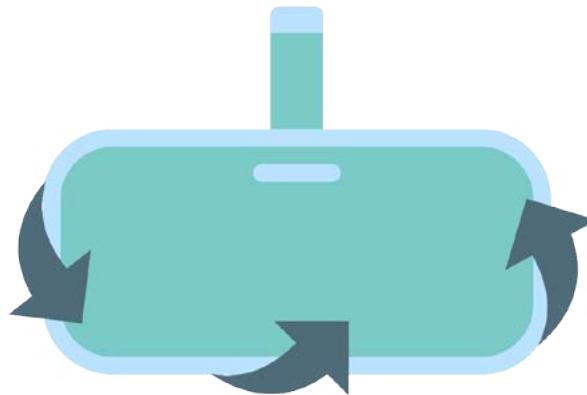
Orientate the drone

SCENARIO

The narrative part of Kaiju Snap is built to follow an episodic model: each chapter has its own characters, place, creature and goals but everything is linked to the first discovery in Episode 1. The journalist duet who had discovered and published the first pictures of a giant beast is in the center of the Kaiju Snap franchise. With this new giant creature evolving in the world, humankind discovers for the first time a new potential super predator, or maybe it's a unique species which has to be protected?

Reactions and consequences of the creature's apparition are developed in the five episodes with first the "secure reaction" of a military quarantine of the archipelago, severe ecological activists reaction, the creation of an international group of researchers with a military arm...

Each episode features its own character point of view of the situation. The journalist duet (and then International Unit) is a key thread to all episodes.

UNIVERSE

Kaiju Snap franchise is built on a simple pillar : each new episode takes place in a new island, has a new drone and some new wildlife to discover, including one or more giant beasts.

Through the episodes the player progresses from island to island to the south of the archipelago. The two opposite edges of the archipelago (south and north) are far enough from each other to have different climates. The islands are located off the chilean coast.

Giant creatures are designed as unique species. They seem to come from the ocean or at least the archipelago. There are different species of giant beasts, each one has its specific behavior and appearance.

They don't belong to any known animal realm, it's an entire new realm.

EPISODIC MODEL   **EPISODE 1 (PILOT)**   **EPISODE 2**   **EPISODE 3**   **EPISODE 4**   **EPISODE 5**

EPISODIC MODEL

New episode: Time as passed since the last episode, you can play a new pilot from a different organization or still the same team.

New drone: Additional mechanics, new behavior, size and weight.

New island: A different climate, new environments and biomes, new fauna and flora.

New creature: A different beast, with its own behavior, habits and rules.

Episodes are built around a central narration: What will happen humankind discovers the existence of giant creatures.

The first episode can be self-sufficient, it's a stand-alone like.
Episode 1, 2 and 3 make a story arc that can stop with the third episode.
The five episodes give the entire story of Kaiju Snap. The franchise universe can be developed after those five episodes, previous episodes would be seen as a first season.

| Episode 1 | Episode 2 | Episode 3 | Episode 4 | Episode 5 |

STAND ALONE

AUTONOMOUS STORY

COMPLETE STORY
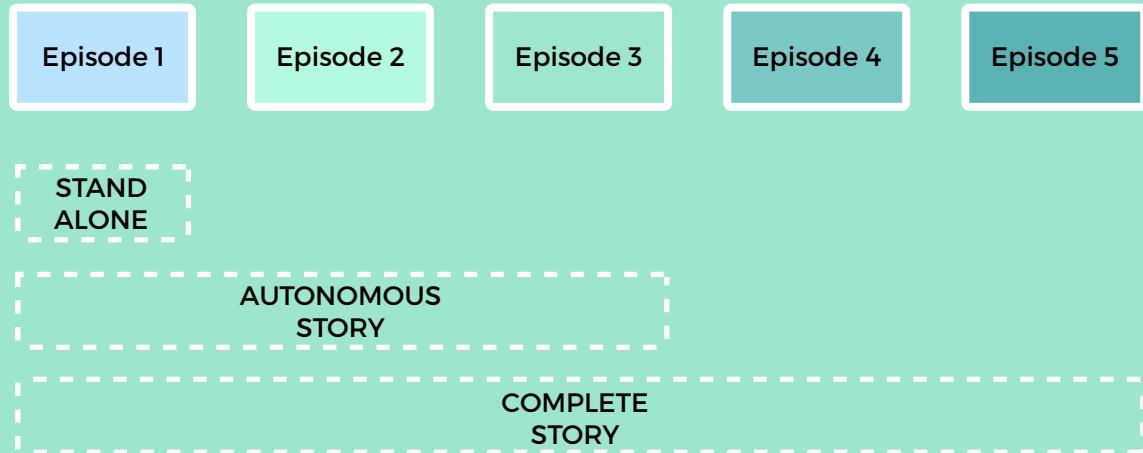
EPISODE 1 (PILOT)

EARLY CONCEPTION

Where: A tropical island in a large archipelago

When: Present time

Who: A journalist duet wanting to raise awareness about the specific wildlife of the archipelago

Drone: A journalist drone with a camera and a limited slot for pictures

Characteristics: First island is a tropical place. The wildlife is very diversified and well hidden.

Goal: Document the specific and endemic biosphere of the island, take pictures of an extraordinary creature to have proof of its existence

At the end of the episode: The creature destroys the drone but journalists have enough pictures for a huge scoop

EPISODE 2

EARLY CONCEPTION

Where: A semi tempered and tropical island with abandoned buildings

When: 2 months after the 1st Episode

Who: Military who puts the archipelago on quarantine

Drone: A military drone, strong enough to carry charges and with different scans on its camera

Characteristics: This island is used by a society to make nuclear and biological trials. It has empty buildings to visit and a feeling of a haunted place.

Goal: In this island, we discover a creature acting more like a cold-blooded predator, with changing skin. One of the missions is to find it and determine if it can be a threat to humankind.

At the end of the episode: Military discover the very aggressive and smart behavior of this particular creature and contact the United Nations to start a "Kaiju Missions". Just before the end of the episode, the military drone detects a new echo from the sea.

EPISODE 3

EARLY CONCEPTION

Where: A volcanic island with Mediterranean-like forests, woodlands, and a scrubland biome

When: 2 months after the 2nd Episode (Ep1 + 4 months)

Who: Ecological activists who enter illegally the archipelago

Drone: A handmade drone, with wheels system to enter into small places and hack modules for military monitoring

Characteristics: Volcanic cycle, eruptions can happen and have an impact on landscape and fauna behavior. Regular calls from the journalist duet of the first episode trying to dissuade them to make illegal exploration and waiting for an official authorization (it doesn't give a good image of the new species cause).

Goal: Activist team discovers a new giant creature species on this island, smaller than the previous ones, five of those creatures form a pack. The goal is to analyze and document their pack behavior and their relation to the cyclic volcanic island.

At the end of the episode: The last call of the journalist duet (from Episode 1) informs them of an international Kaiju unit creation. This will be a research unit helped by the UN army. At the end of the call, a huge and bass scream comes from the ocean. The Kaiju pack (and other packs hidden during the game) get out the forest and start diving in the ocean. The last image taken by the drone is a supermassive thing, calling the creatures and surface from the sea: an alpha beast.

EPISODE 4

EARLY CONCEPTION

Where: A temperate island with lakes, south of the archipelago

When: 2 months after Episode 3 (Ep1 + 6 month)

Who: Journalist duet from the first episode and new teammates (from the new Internationale Kaiju Research Unit) we can hear on the audio background

Drone: A futuristic drone with scanners and micro-cameras that can be stuck on trees or rocks. The drone can also dive in water for a limited time (3 minutes max)

Characteristics: This island has dense forest with a short visual range between conifers. There are three lakes across the island with creature eggs nursery on the lake's bottom. Young creatures of this species are protectors of the eggs during their childhood.

Only juvenile beasts are part aquatic for this species. Adult creatures are huge and wander around, hidden on the island, only meeting for reproduction.

Goal: How do they reproduce? Live on an island without going out? How many alphas per beast species are there? During this episode, the player will study the reproduction and life cycle of giant beasts.

At the end of the episode: This species is generally peaceful, it has a symbiosis relationship with some creatures of the island. On its way to leave the island, the drone films a young creature playing on the shore. Suddenly it gets attacked by some predators (two predators from the second episode). The journalist is worried about this migration, creatures don't leave the archipelago but with that kind of predators, peaceful species could disappear soon.

EPISODE 5

Where: A coast at the extreme south (outside the archipelago). Borealis/polar climate.

When: 3 months after Episode 4 (Ep1 + 9 months)

Who: Coastguards in charge of a part of the coast and few small islands.

Drone: A half-military drone used by coastguards to overwatch the sea route traffic and whale migration.

Characteristics: For this last episode, the player isn't trapped on a single island. This episode offers a large zone of ocean/coast with small islands and drifting icebergs. There is less flora than in other episodes but other big species like blue whales, orcas and dolphins. Those animals react to the presence of a potential predator.

Goal: Track and find what is killing whales. Analyse dead whales, bite shape and animals behavior. Those whale killers are enormous creatures from the deep sea, sometimes coming to the surface and attacking big preys. Giant beasts aren't supposed to leave the archipelago where they were discovered almost a year ago, why is one of them here?

At the end of the episode: Coastguards notify the International Kaiju Research Unit of the presence of a specimen here in the south. The player can hear the journalist from Episode 1 answering the call. Knowing the creatures are able to leave the archipelago and be anywhere will be a huge new and may launch some kind of panic movement. Humanity will have to learn to live with the proximity of these giants (parallel with the end of the first episode).

WORLD DESIGN

Kaiju Snap has an archipelago as a playing field. Each episode takes place on a new island with a new fauna and flora and objectives.

On each island, there are specific areas (with different biomes) with their own wildlife. As the game isn't just about a giant creature but unique life forms on each island and overall, the archipelago, biomes are one of the key points of environmental and world design.

Areas are built around a size/time spent equation and geographical question. Most of the islands have an extinct volcano or some small mountains at their center: it brings different micro-climate on each side of the island. The wind protected side of the island is mostly covered by vegetation with beach or mangrove swamp on the coast, windy sides are more rough, with cliffs, canyons and rocky shore.

Those specific areas have their own animal species and plants, adapted to those places and the island.

MAP OF THE FIRST ISLAND

TRACKING ZONES

THE BAY
THE GRASSLAND
THE MANGROVE
THE QUARRY SITE

THE CHASE AND THE END
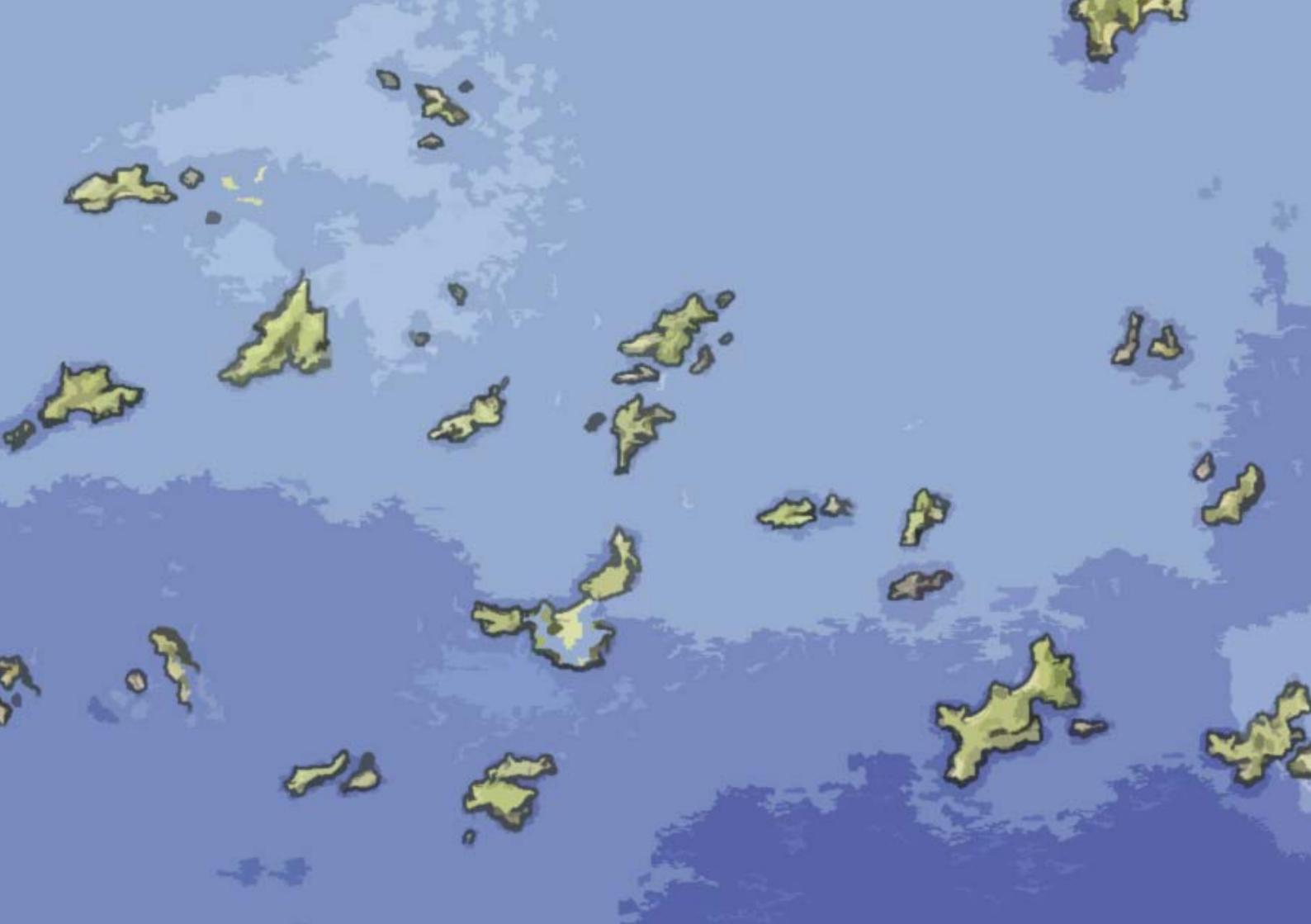
MAP OF THE FIRST ISLAND

The first island is based on a generic model of a tropical island. We want the shape to be original, not just a circle isle with a volcano at the center and water around. So the shape is worked with those intentions of a realistic living island, with coasts, rocky caps, its own micro-climates, and river systems.

On that base, we developed the biomes of the island: Mountains form two mains chains meeting up around the inland lake.

The island's southwest is really windy, there are less vegetation and animals, just a dry grass and some thorny bushes.

Southeast is a more typical coast like the one of a tropical island: a clear and shallow lagoon, smooth and shiny sand beaches, coconut trees and the outskirts of the jungle.

The east and center of the island are mainly covered by jungle, the main ecosystem of the island.

The west coast is really singular, one of the main rivers of the island divides itself into multiple inlets and small streams flowing in the sea. This really muddy and flat soil gives birth to a mangrove. It has this unique role of protecting the lands from water erosion.

Zone 1
Zone 2
Zone 3
Zone 4

SPOT 1
SPOT 2
SPOT 3
SPOT 4

ARRIVAL

ESCAPE
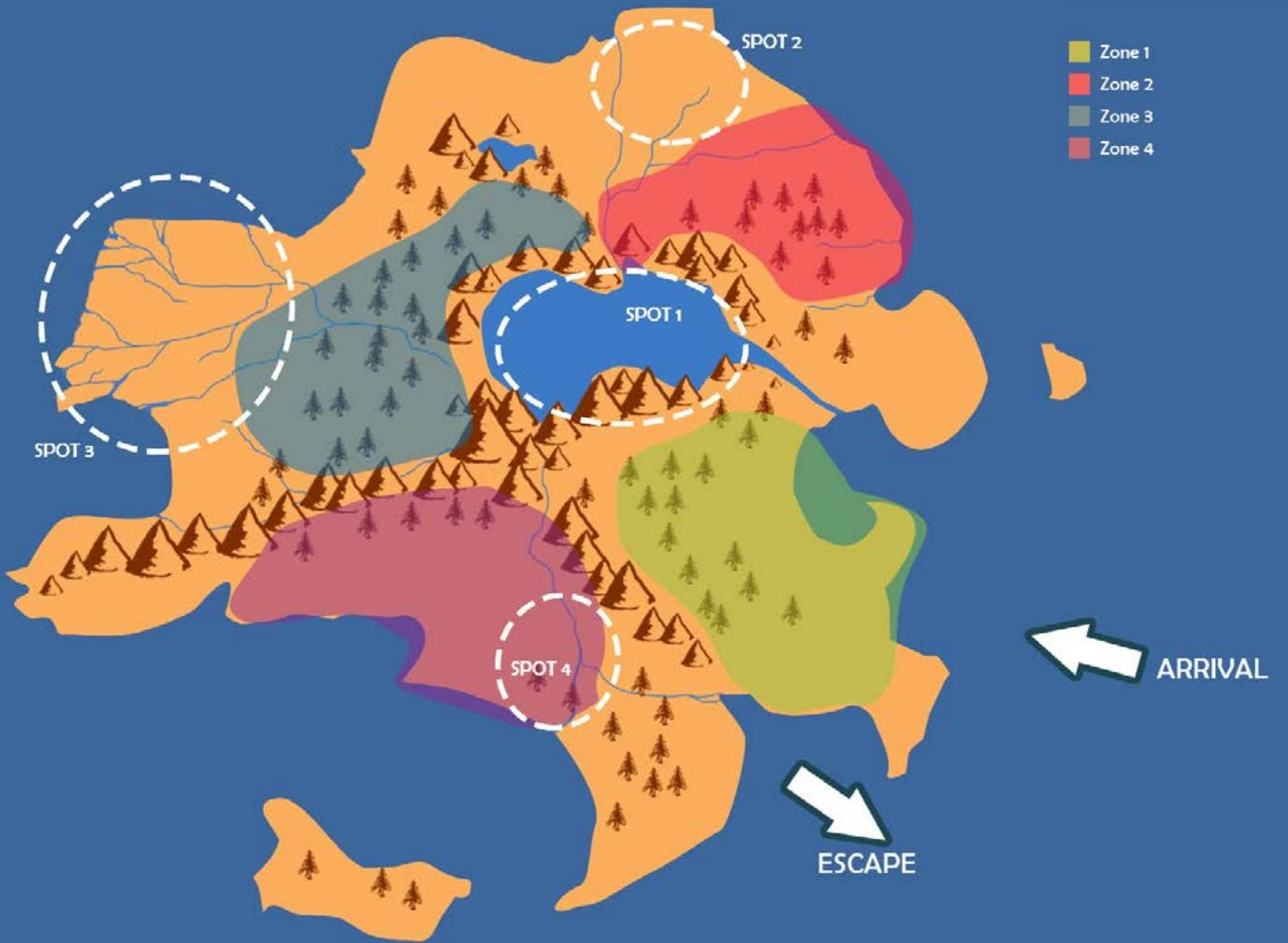
TRACKING ZONES

THE BAY

Tutorials & Discover the creature / +35mn

The first tracking zone will be about learning how to fly the drone and take pictures. It takes place just after the introduction. The player will find the first hint of a giant creature and will follow them to the first zone: a large bay.

The whole first track is in the jungle biome. In this dense forest, the player can find multiple objects to photograph: birds, endemic plants, beautiful point of view, an enormous footprint, big scratches on rocks and strange plants.

After unlocking enough hints the player receives a global direction: following a small stream will give him access to the bay.

The bay is surrounded by a beach and cliffs. There is a large river flowing down to the bay, once the giant creature appears it will swim up the river and dive into a labyrinth of cave and canyons. At the end of a large canyon where the creature plays in the water, a new bay marks the end of this Zone and the beast will disappear again.

TRACKING ZONES

THE GRASSLAND

Track & documentary behavior / +30mn

After the Zone 1, the journalist leads the player to a new jungle area. Knowing the existence of the creature will bring more difficult hints to find. Broken branches, frightened animals, and some strange quakes. In this tracking area, the player starts using the Flash.

The passage to the second zone is between giant rocks after the cliff. The second Zone is a small grassland (it's an island after all) with low ravines. The beast is rolling on the grass and dry ground. It's an opportunity to shoot it and its natural behaviors. The player can try to use the Flash to make the creature react. After flashing the beast, it roars and escapes in a big dust cloud.

TRACKING ZONES

THE MANGROVE SWAMP

Take the hint on the island's size / +30mn

After getting out of the dust cloud, the player has access to an area of jungle leaving to the main river. Following the river brings the player to several hidden hints (footprints in the river ground, fallen tentacle, giant parasites). The river separate in multiple streals, and the ground get really muddy. The drone can access the mangrove area before getting all the necessary hints but as for the other Zones, the creature won't appear.
The beast appears in the water, in spaces between trees (it's high tide). The creature is probing into water, sand, and mud to find some swamp fishes. After a few pictures and if the player flashes it, the creature wiggles, grunts and splashes the drone with mud. During the time the drone cleans the camera, the creature disappears again in the water.

TRACKING ZONES

THE QUARRY SITE

Push the player / +30mn

After getting splashed by the mud, the player can follow the seaside to a stone beach. Going up the beach, the drone flies alongside cliffs and high hills, some hints can be found. The Track 4 hints are the hardest to find, the player needs to look for them in difficult spaces to reach. Hints drive the player to a rock quarry site. A river hugs the edge of the quarry. There are enormous rocks on the site.
The creature is resting on a rock. The journalist pushes the drone pilot (the player) to take really close shots of the creature. That upsets the creature (faster if the player uses flash). This time the beast may intentionally destroy some rocks and obstacles. At the end of the animation pattern, if the creature is angry, it breaks a giant rock and starts chasing the drone.

THE CHASE AND THE END

Final rush / +5mn

The drone flees into a nearby canyon, slaloms between rocks, avoiding the beast attacks. The drone leaves the canyon passing through a tight passage between two rocks columns, the creature destroys the columns after it. The player enters a tunnel (too small for the creature), flies through it to a way out and the sea. The creature is already waiting at the exit, looking into the tunnel with its giant eye. The drone needs to make a U-turn to go back and pass under a waterfall to exit the tunnel, the same way it entered.
That gives the player enough time to flee to the seaside and go offshore. The drone leaves the island by sea. A few moments after flying above water, a shadow appears under the drone and the creature swallows the drone.

ECOSYSTEM

The ecosystem represents the way life has developed on the island, with the different species of animals and plants. The goal of the ecosystem is to make the player feel like he/she's progressing through a living island.

The feeling of seeing and interacting with living animals is particularly important in VR in which the players pays a great attention to the consistency of the world they travel through.

The ecosystem is important to construct the research of an animal based on what the players see and the operator deduces. It has to be consistent to enhance the feeling of being part of a documentary expedition.

NEEDS   **CHOOSING A GOAL**   **EVALUATE AND REACT TO DANGER**   **NATURE IN MOTION**

NEEDS

Each species can have up to 4 different needs, based on Maslow's hierarchy of needs : food, water, sleep, security. Those needs are the goals the species will tend to achieve autonomously in the game.

Each species lives in a niche, which is an area that can fulfil any of its needs. Concretely there are differents spots in the world the species can use to drink water, eat, sleep or go in case of danger, and they determine the size of the niche.

The operator is aware of the concept of niche, and that's how she will help the player find the different species encountered based on biology theories. "This bird must be hunting near the shore".

There can be multiple spots for the same need in a niche

Niche

💧 Water

🌙 Food

Zzz Sleep

🏠 Security
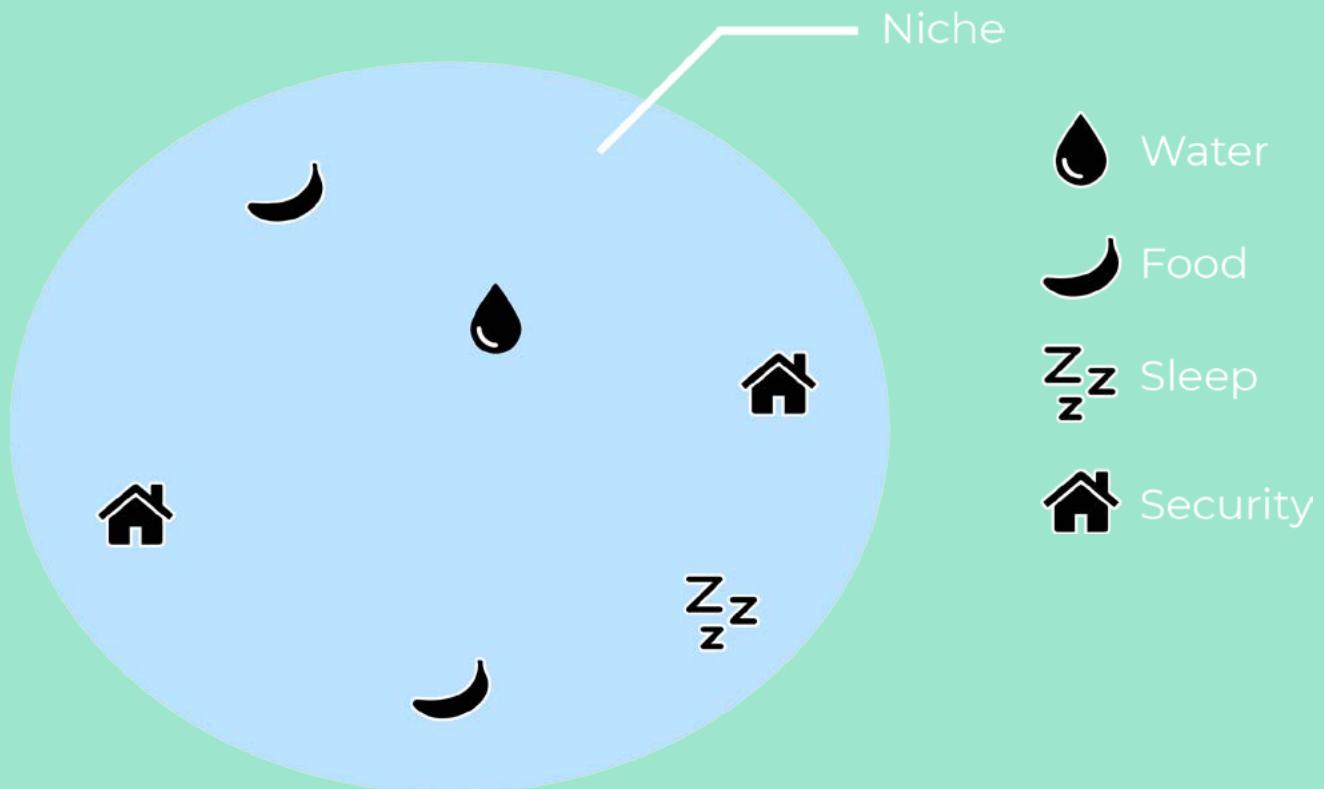
CHOOSING A GOAL

The need to drink water, eat and sleep evolve with time. The species will focus on the need as the top priority until it's fulfilled and then will look for the new top priority to accomplish.

The value of a need corresponds to a score. The need with the highest score becomes the top priority, but the needs don't have the same evolution of score through time. For example, the need to sleep needs to be quite high to have a chance to become a priority, while the need to drink water is really high pretty quickly in its development.

The need to be safe acts as a boolean triggered by the presence of another animal or the drone. This need becomes instantly the first priority once triggered, meaning that a bird drinking water will fly away to a safe spot at the instant it feels insecure.

Example of a decision to drink water

The species will look for the closest spot to drink water because it is the most rewarding action. But if the drone arrives at high speed in its direction, it will feel insecure and will go to its nearest security spot.
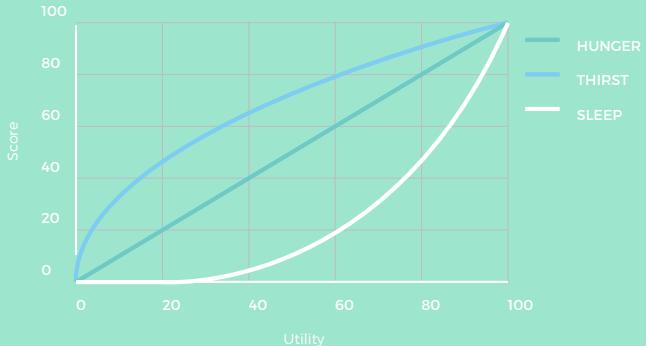
For the same utility, the needs won't get the same score. The utility of these needs increase with time.
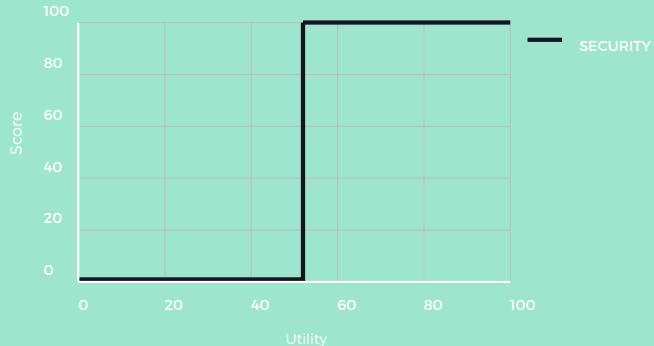
The need of security acts as a boolean.
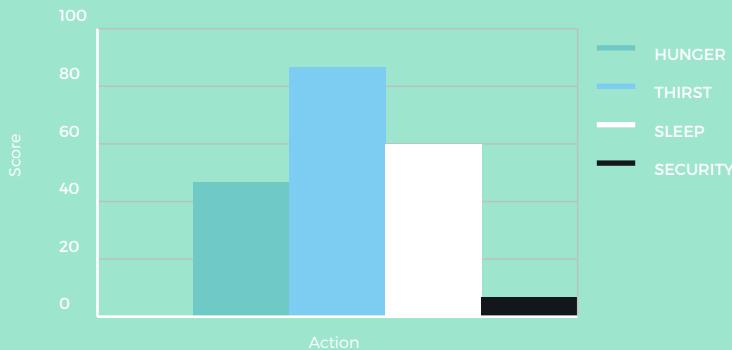
EVALUATE AND REACT TO DANGER

The species able to feel the need of security have a way to evaluate the dangerousness of a situation.

They have a cone of vision and a sphere of hearing to detect what's coming towards them. Depending on its nature, different factors can make the species react. On the next page is an example of species A encountering species B.
Note: when the drone plays a sound, it becomes species B.

In the case where the drone is detected, there are few parameters like a %DangerousSpeed% and the relationship with the drone that will depend on the species. If the drone comes with a speed superior to %DangerousSpeed%, then it will trigger the security need (by hearing detection). If the drone is seen by the species, the species will react with the same rules described in the example depending on its relationship with the drone.

Reaction of species A to a detection of a species B depending on their relationship and A's current state.

A is traveling to a spot

	A's reaction
A hates B	Yell and keep going to the spot
A fears B	Look for another identical spot in its niche
A tolerates B	Keep going to the spot

A is in a spot

	A's reaction
A hates B	no reaction
A fears B	Look for a safety spot
A tolerates B	no reaction

NATURE IN MOTION

In each ecosystem (forest, pond, lake...) there are a few species cohabitating together. The ecosystem is composed of several layers of niches, one niche for each species. Several spots can be shared from one niche to another. It means that different species will happen to meet at the same spot, a river for example.

The reaction resulting depends on the link between the species as you can see in the picture.

Every species has an established relationship with any other species. It can be hatred versus fear, or both tolerance towards the other.

This is how encounters between species happen. Different species can share several spots, especially for those tolerating each other.

Niche species A
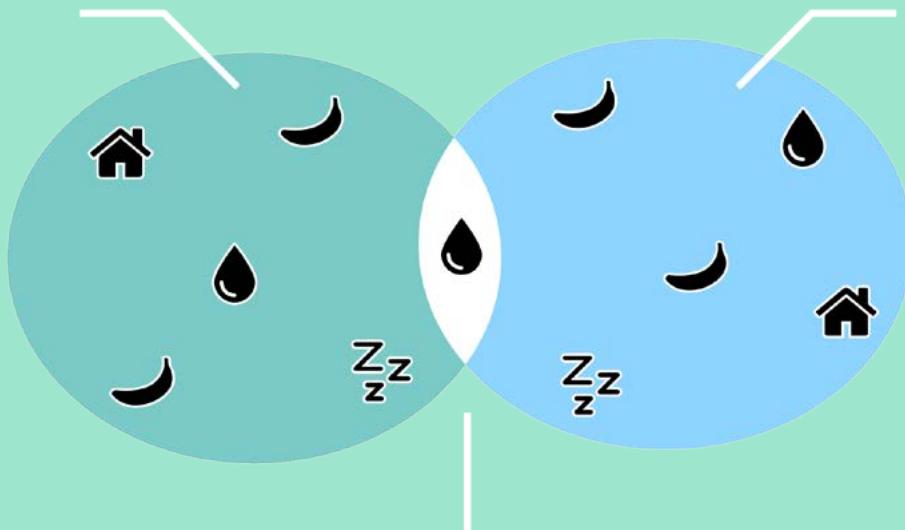
Niche species B

Water

Food

Sleep

Security

Possible encounter

GAMEPLAY

The drone can take pictures to add photos to the documentary, but it can also use a flash, record and play the sound of animals to interact with its environment.

GAMEPLAY BRICKS

PHOTO
SAVE PICTURES
SIGNAL
PLAY SOUND
FLASH

GAMEPLAY LOOPS

SHORT TERM - TAKING PICTURES
MIDDLE TERM - SAVING PICTURES
LONG TERM - SESSION LOOP

CHALLENGE

GALLERY

OVERVIEW
THE CLOUD

GAMEPLAY BRICKS

PHOTO

This is the core mechanic of the game. The player can take pictures while piloting the drone in photograph mode, using the input RB (down).
The pictures can serve several goals in the adventure, like completing the gallery of photos of the species on the island or winning a challenge, or even achieve a purpose fixed by the player.The drone can carry up to 15 photos on its memory card.

Thanks to the analyzing system, the photographs are automatically sorted by species when imported in the gallery.

GAMEPLAY BRICKS

SAVE PICTURES

Because the drone can stock only 15 photographs on its memory card, the photographs have to be uploaded from the drone to the journalists' cloud. Once the player saved the pictures carried by the drone, those photos are automatically sorted in the gallery's cloud, and all the slots of the memory card are empty.

This manipulation requires however that the drone flies through a highspot, giving it a strong enough connection for the upload. The player has to press X in photograph mode to upload the photographs. Saving pictures is really important because when the drone gets destructed, the photos it is carrying are lost.

DRONE
Can store a limited amount of photos on its memory card

HIGHSPOT
Saves the photos on the cloud

GAME OVER
Photos on the memory card are lost
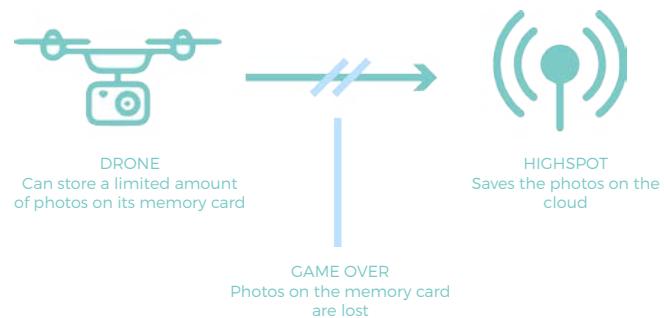
GAMEPLAY BRICKS

SIGNAL

The signal received by the drone determines where it can go and where it can't go.

The first image means that the drone is going in the wrong direction. The UI warns the player. If the player goes even further away, more and more artefacts are gonna appear on screen and the drone will finally get lost, and the player starts over to the last checkpoint.

The second image means that the drone is in a highspot. A highspot is an area in which the player can save the pictures carried by the drone on its memory card.

Player is warned by the UI

The player is invited to upload the drone's photos.

WARNING !

92 Mps

Connection with CNN

High signal ! Press Ⓧ to send your pictures

92 Mps

GAMEPLAY BRICKS

PLAY SOUND

The drone records automatically the sound produced by the species it encounters.
The player can play those sounds in order to interact with the species in the environment. The species have different kind of reactions depending on their relationship with the species recorded. The drone adopts the identity of the species's sound it plays.

To play a sound, it has to be loaded on the Play Sound input from the gallery's cloud.When the player presses the Play Sound input (down) the drone plays a short sequence of sound produced by the specific species.

The drone will automatically record the sound of a species once it is close enough.
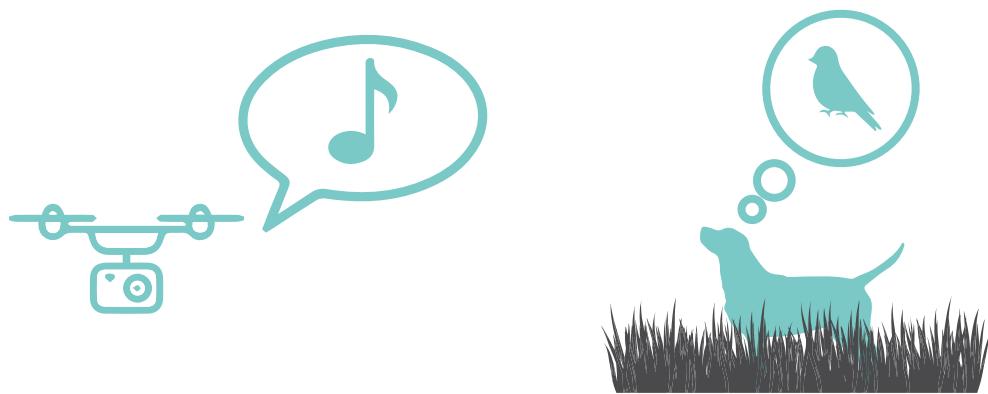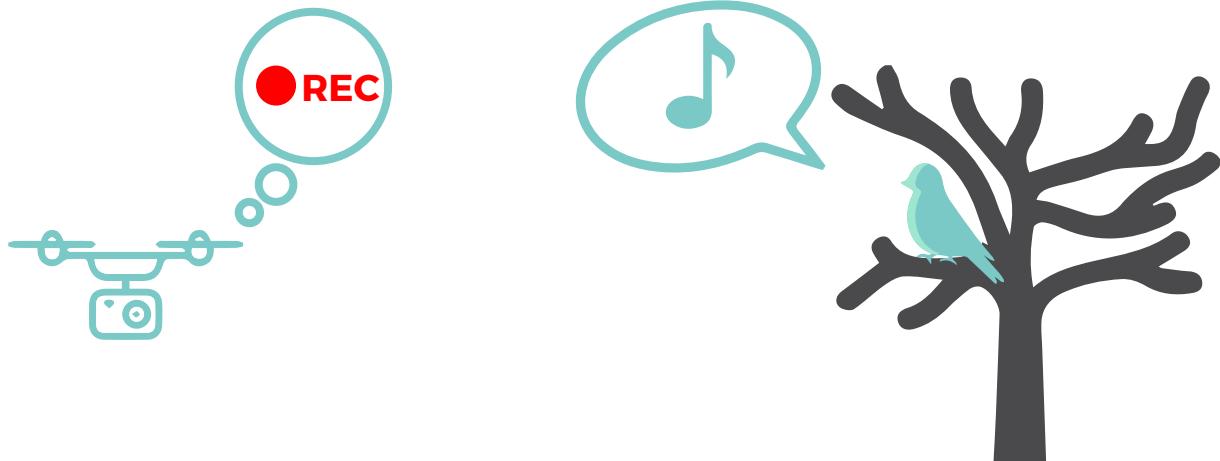
GAMEPLAY BRICKS

FLASH

The drone can flash its environment for an instant of 500ms.
The flash can be used to lighten the environment in dark places in which the players want to better apprehend their space.
It can also be used to interact with the species the players encounter, and trigger different reactions from the nature. The flash can be used by pressing LB (down).

The flash can be used to lighten dark spaces like caves, catch the attention of creatures, vegetal species can react to flash exposure and animal species can react by going away.
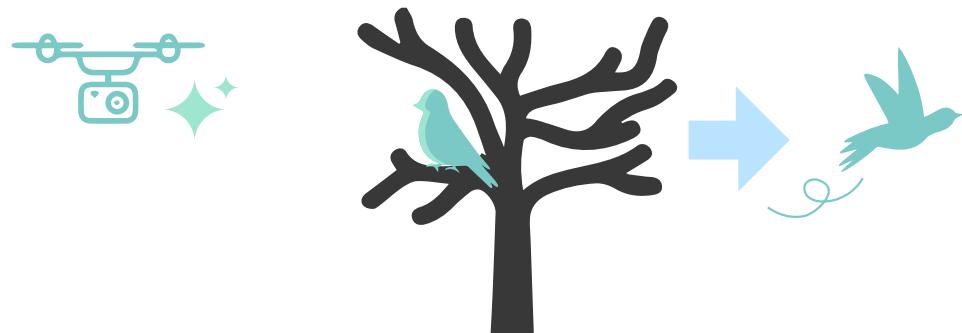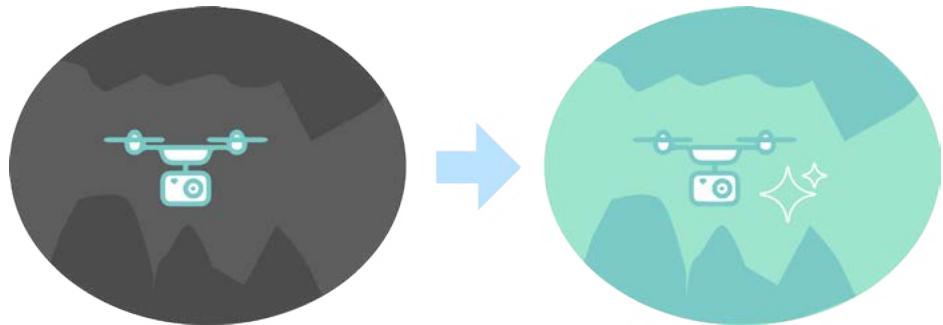
GAMEPLAY LOOPS

TAKING PICTURES (SHORT TERM)

FIND A TARGET

APPROACH

AIM

TAKE A PHOTO
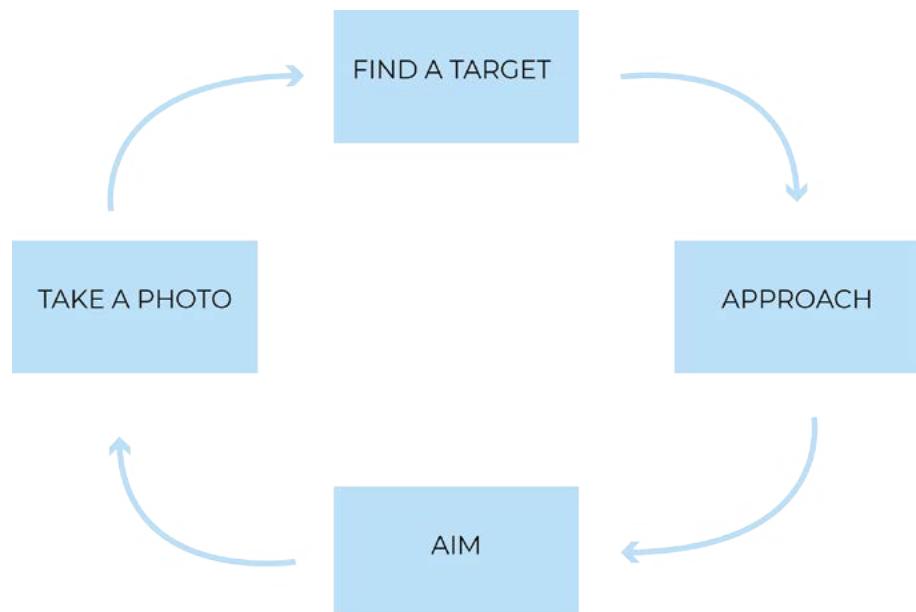
Goal; gather information / collect pictures

GAMEPLAY LOOPS

SAVING PICTURES (MIDDLE TERM)

```
                    MEMORY CARD
                      EMPTY

  UPLOAD THE                          TAKE PHOTOS
   PHOTOS


     GO TO A                         MEMORY CARD
    HIGHSPOT                            FULL
```

Goal; save pictures update player's collection
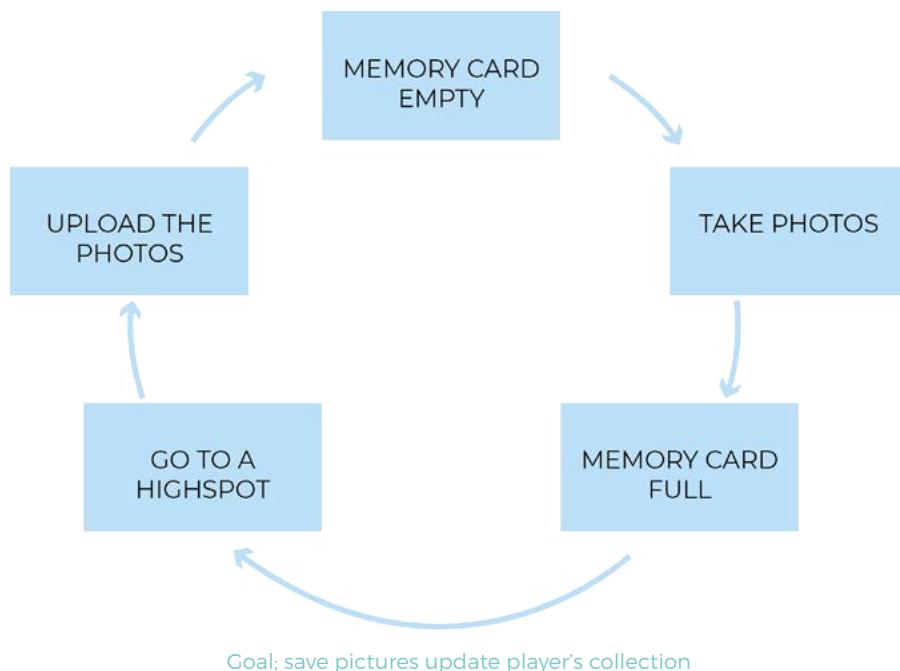
GAMEPLAY LOOPS

SESSION LOOP (LONG TERM)

DISCOVER A NEW AREA

COMPLETE COLLECTION

FIND HINTS

ENCOUNTER THE KAIJU
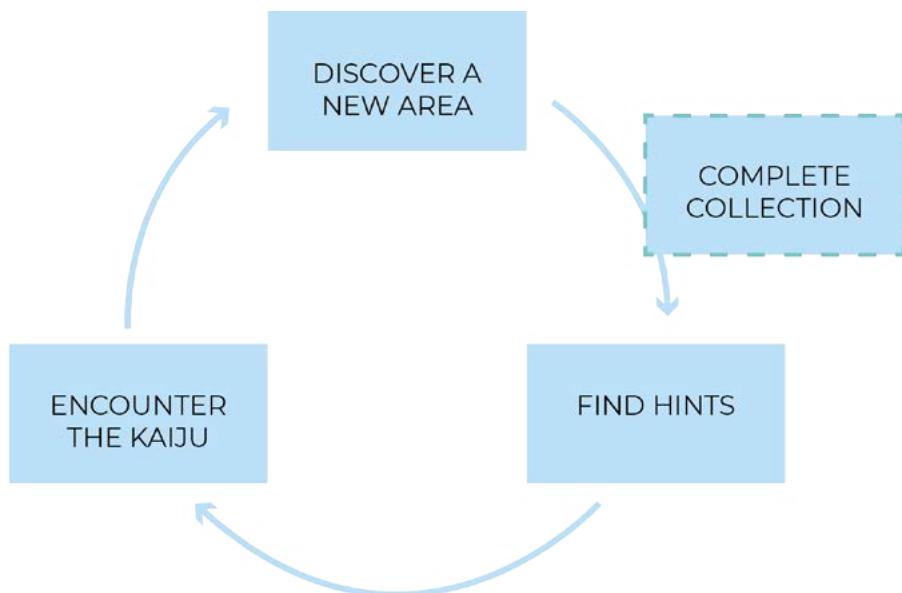
Goal; learn more about the creature / complete the photo collection of the area

CHALLENGE

The player has several kind of objectives to achieve. Objectives are displayed as a text on the right side of the screen and are transmitted by the operator. The player can show or hide it at any time using the input B (Down).

The mechanic of taking a picture is used for each of these challenges, but the actions such as the Flash or the Play Sound can help the player taking the perfect picture by interacting with the environment.

While tracking the creature in free exploration, the player is guided by the operator through different hints of the presence of the creature. Those hints can be for example footprints or tentacles.

The player's observation of the environment is challenged. The idea is to make the starting point of the research obvious to begin looking for a hint from there, while the other hints require searching through different furnished environments and sometimes take the right point of view.

The player has to take a photo of each hint in order to complete the track. At the end of it, the player has an action to do that will lead to the encounter with the creature.

While in a creature spot during a mission, the operator asks the player to take several pictures of the creature (See image). The player has to take a minimum of a certain amount of these photographs in order to succeed the mission. The time available to do it begins when the player finds the creature and ends when it goes away while the player can't follow it anymore.

At the end of the mission, the operator gives a compliment if the player succeeded or gets angry and takes the control of the drone if the player failed, that results as a game over, and the player starts the mission again.

In free exploration, the player can try to complete the gallery, meaning having a picture of each species on the island saved in the Cloud. This challenge is linked to the first goal of the journalists in the first episode who wanted to make a photo documentary about the island's species. The player has no obligation to do it because it's not part of the missions.

The player can set a research of a species as his/her objective displayed on the interface from the gallery cloud.

GALLERY

OVERVIEW

The gallery is the place where photos are stored.
The player can access the gallery by pressing the "Start" input anytime in the game. However, as the gallery is diegetic, opening it won't pause the game.

The gallery is separated in 2 tabs :
● The Memory Card of the drone. Opening the gallery automatically leads to this tab. The photos are blurry to indicate they are not saved yet.
● The Cloud. It regroups all the photographs uploaded (saved) by the player. The photographs are automatically sorted using the photograph analyzing system and are showed in high quality. There are folders for the photos of the creature, the different areas with their species and the player's photo.
The player can store an unlimited amount of photos in the cloud.

1. Selected photo
2. Preview of selected photo
3. Empty Slot
4. Important photo for a mission: it can't be deleted

GALLERY

The photos are sorted by 3 main categories :
- The creature
- Each area's fauna and flora
- The player's photos

Each area has a folder, with one thumbnail in it for each species the player can encounter in that specific area. It gives a few pieces of information to the player:
If a species has not any saved picture yet, its thumbnail will be a silhouette. If it has at least one saved picture, the thumbnail is one of those pictures. If the call of a species has been recorded, a "recorded" symbol appears next to the thumbnail.
The player's photos are all the photos that don't fit in any category according to the analyzing system, like landscape photos for example.

The player can do multiple actions within the gallery. While navigating over the thumbnail of a species with a "recorded" symbol, the player can listen to the cry of the animal, and stock it in his/her "Play Sound" input.
The player can also launch a research of the species from the thumbnail too. The result is that in the game, the operator will communicate information about where the player can find that species.

The player can open a thumbnail to see all the saved photos of the specific species. While navigating through the photographs, the player can make one of these be the new thumbnail, see the picture in full size, delete the picture or pin it at the top of the photos to find it easily.

GAMEPLAY PROGRESSION

In Kaiju Snap we are combining game mechanics, experience duration, environmental progression and difficulty balance to structure our game experience. Those specific fields are adapted to a VR experience, which has some particular constraints (such as player comfort or minimal framerate).

VR and drone controls have to be easy to handle and the experience should be as smooth as possible on the level comfort. As the player is used to the controls, the diversity of the experience will come from photographic challenges and story events.

GAMEPLAY MECHANICS

EXPERIENCE DURATION

ENVIRONMENTAL PROGRESSION

DIFFICULTY CURVE

GAMEPLAY MECHANICS

Main mechanics are taught to the player during the first half of the game. With this division, we assure to give all the comprehension and gameplay keys to the player so he can enjoy the second half of the experience without being hindered with new features to learn.

Mechanics are usually associated to an area: new area = new mechanic. With the exception of the first big area the player visits, where he/she learns a new flight mode (Speed Mode) and the main feature: taking pictures. Once on the island, the player has access to a simple tutorial area where the basic controls of the drone are taught. At the end of this area, begins the new area "Track 1".

In "Track 1", the player is given an easy challenge (take a picture of a static object) to teach him how to "take a picture". We sensitize the player to spare the picture system. This first large tracking area also introduces the Speed Mode to the player, with wide space to navigate through.

Once in the "Zone 1", the player faces the creature for the first time and the challenge to take a picture of a giant mobile target. In this zone, the creature pattern is mainly linear to ease the learning.

Then, the game continues on the area "Track 2" where the player learns to use the Flash. This mechanic is then available for the rest of the game and allows to trigger some plants and animals. The player is put in a situation where he has to make shadowy plants react and open using the Flash.

The last mechanic is taught two areas later, in the "Track 3" area. Flash and Play sound have a big impact on the search and "hunt" of the fauna and flora, therefore they aren't taught right away. In this track, the player approaches a really fearful bird by making it listen to sounds of its kind.
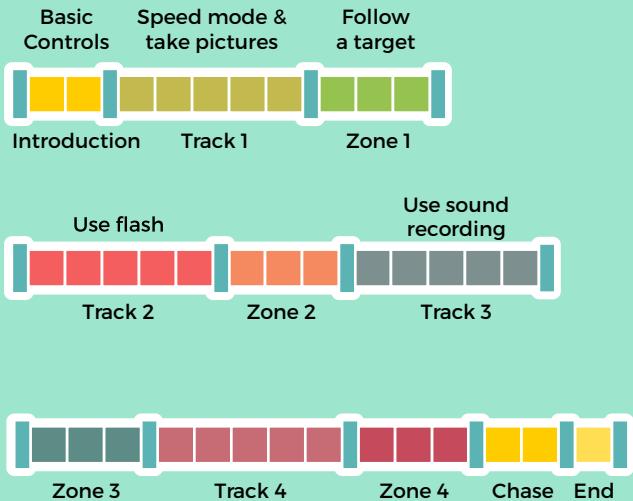
	Basic Drone Controls	Speed Mode	Take Pictures	Follow a Moving Target	Use Flash	Use Sound Record
Introduction	O					
Track 1	X	O	O			
Zone1	X	X	X	O		
Track 2	X	X	X	X	O	
Zone 2	X	X	X	X	X	
Track 3	X	X	X	X	X	O
Zone 3	X	X	X	X	X	X
Track 4	X	X	X	X	X	X
Zone 4	X	X	X	X	X	X
Chase		X		X		
End	X	X				

O = New Mechanic   X = Part of regular repertoire of mechanics

EXPERIENCE DURATION

Kaiju Snap sets its play areas lasting for the average VR player session time, about thirty minutes. That doesn't mean the game is a string of half an hour sequences, the format would be too repetitive and not enough diversified.

"Track" and "Zones" areas have similar time periods. Here we take the player experience gain into account: the more the player progresses in the game, the more the player is able to track, find and shoot targets. The player should progress naturally faster from zone to zone, except that for each new zone corresponds a new challenge and more difficult objectives.

To cover the gain in speed and experience, areas expand and become more and more complex. This difficulty rise is sustained by the appearance of Flash and Play sound mechanics which allows new and diversified challenges.

At the end, the theoretical time spent per play area remains basically the same, with the exception of specific moments as the Chase or the conclusion at the end of the episode.

6-10'	30'	10-15'	30'	10-15'
Introduction	Track 1	Zone 1	Track 2	Zone 2

30'	10-15'	30'	10-15'	4-8'	3-5'
Track 3	Zone 3	Track 4	Zone 4	Chase	End
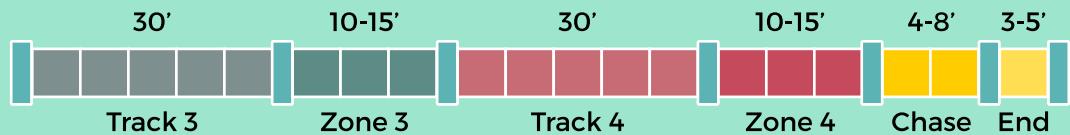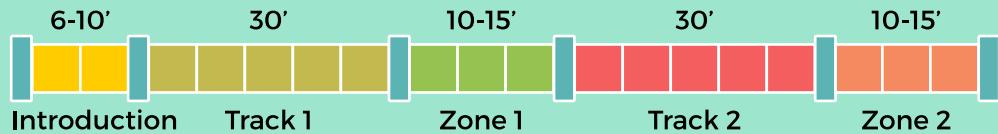
ENVIRONMENTAL PROGRESSION

Kaiju Snap offers an entire tropical island as a playground, so it's important to diversify natural biomes and still keep a certain amount of consistency. Biomes are split on the island regarding their geography and the land relief (ex: mangrove swamp where the river splits into multiple channels, quarry rock site where the shore is the more exposed to wind). There is, in the fauna and flora of the island, a biological logic in its diversity and layout. Fauna is specific to each area and has specific behaviors.

Besides the progression in different environments, the level of intensity in actions and events vary during the experience. Intensity peaks are mostly located at the moment where the player has to learn a new feature or encounter the giant creature.

The player path is also guided by distinctive landmarks (ex: a singular tree stump, a stream with a recognizable shape), those marks serve as points of reference. As Kaiju Snap is divided into several large areas with wild vegetation, it's important to give some kind of references to the player, allowing him to make a mental map of the play area.

Zone 1
Zone 2
Zone 3
Zone 4

SPOT 1
SPOT 2
SPOT 3
SPOT 4

ARRIVAL
ESCAPE

Episode path
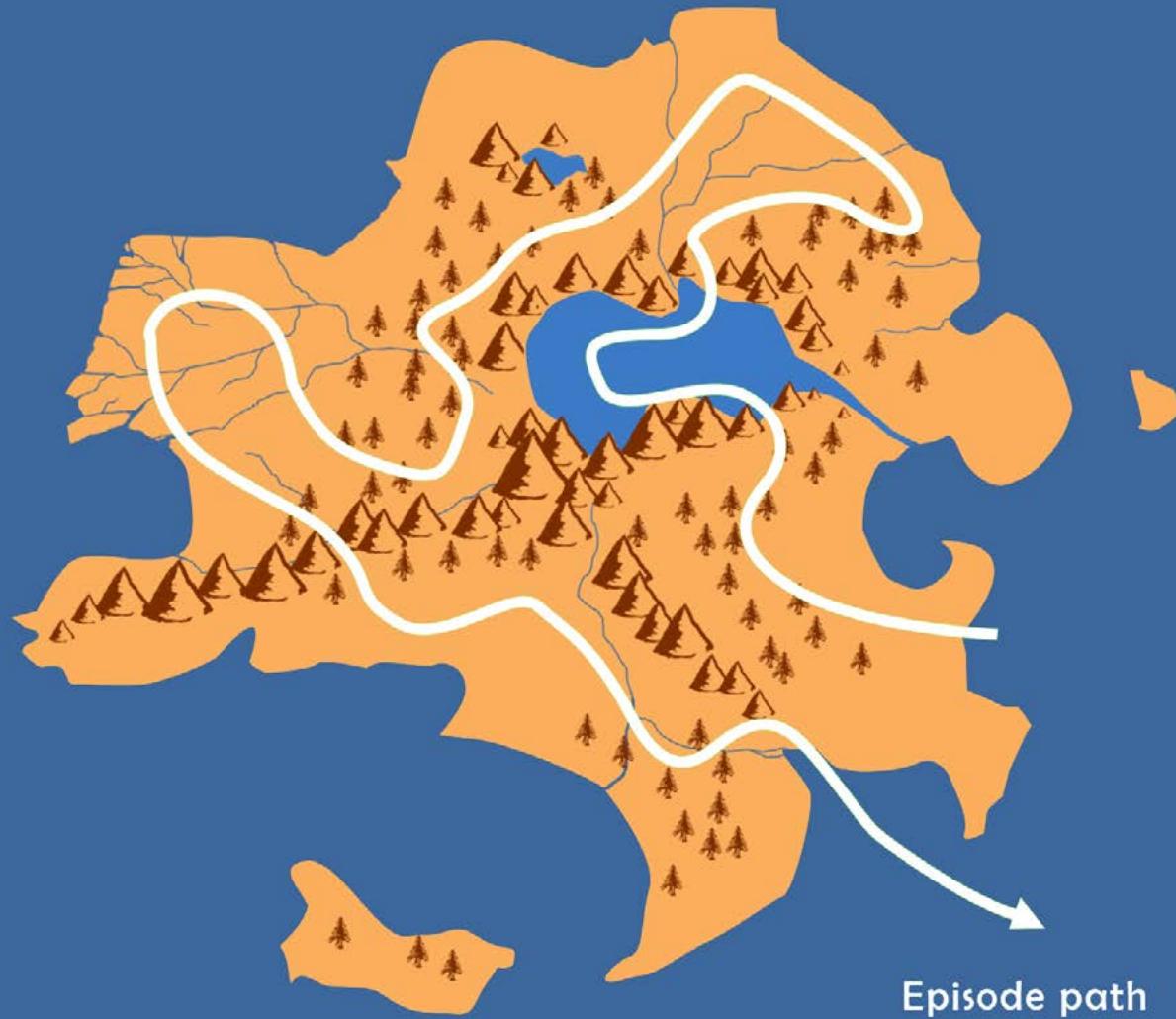
	Scripted Action Intensity (/10)	Environmental Wonders	Distinctive Landmarks	Environment Types
Introduction	4	2	2	Tropical Beach and Shore
Track 1	3	1	1	Jungle dense forest with small rivers
Zone 1	9	4	3	Shore, bay and canyons
Track 2	4	2	1	Jungle and cliffs
Zone 2	3	2	2	Grasslands
Track 3	4	3	3	Large river and Jungle
Zone 3	5	3	2	Mangrove swamp
Track 4	3	2	3	Sea side, shore, cliffs and high hills
Zone 4	6	2	2	Rock quarry site
Chase	10	1	1	Canyons
End	7	1	1	Sea & offshore
Epilog	2	NA	NA	Breaking news on a television

DIFFICULTY CURVE

In Kaiju Snap, the experienced difficulty follows the usual logic which is "the more you progress, the harder it is". This rise is then adapted to the segmentation of play areas and certain narrative interventions. As can be seen in the following graphic, the rise is generally made by successive levels, usually starting with the arrival in a new zone/area. Difficulty spikes mark the learning of a new mechanic or a new zone with the creature. The two main difficulty spikes are the first encounter with the beast and the chase at the end of the episode between a hostile giant creature and a tiny drone, it requests a good mastery of the drone controls.

Difficulty

Introduction　Track 1　Zone 1　Track 2　Zone 2　Track 3　Zone 3　Track 4　Zone 4　Chase　End
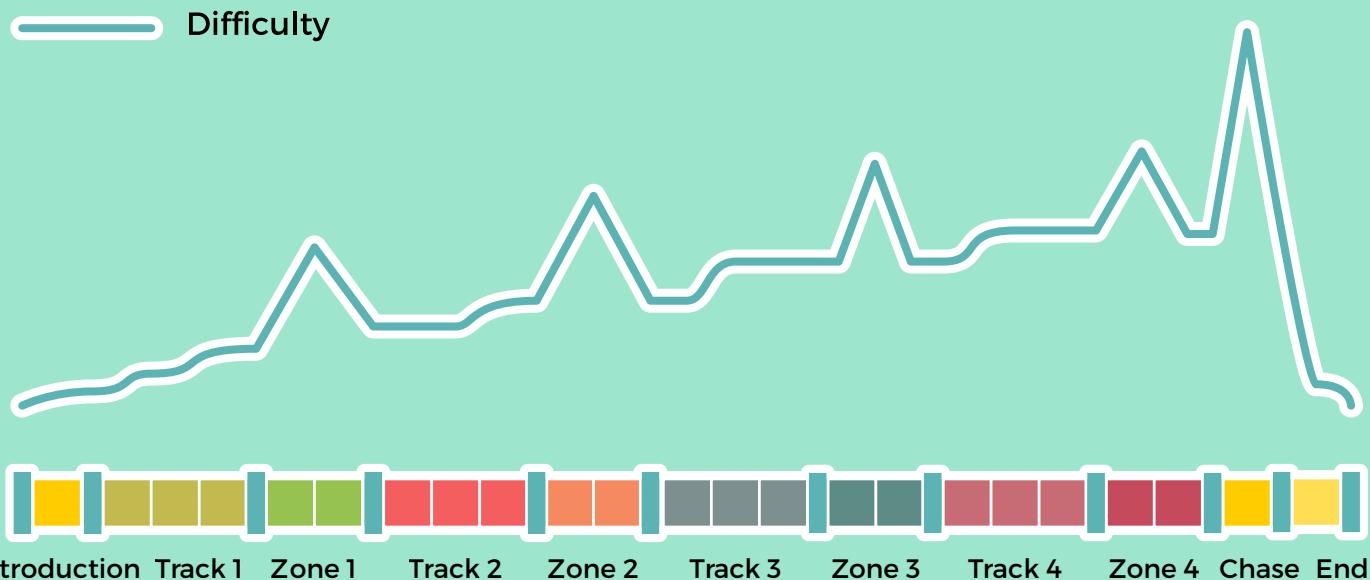
LEVEL DESIGN EXAMPLE

The following level was designed for the vertical slice presentation: it reflects the main features like piloting a drone and take pictures of a giant creature. The Kaiju Spot is inspired by the area called "Zone 1". It's an entire area where the player encounters the creature for the first time and will follow it into caves and canyons.

The map is based on an alveolus system, alternating confined spaces and vast areas. The creature behavior is diversified but reusing the same animations in different situations.

LEVEL DESIGN RULES:
DO'S AND DON'TS

GENERAL
DESCRIPTION

LOW-LEVEL DESIGN:
DETAILS OF THE FIRST BAY

LEVEL DESIGN RULES: DO'S AND DON'TS

DO

- Set a limited height for the drone

- Give scale references to the player with familiar objects

- Create a human size environment and place the giant creature in to have this feeling of gigantism

- Create a path for the player to have a bottom view more often (of the creature)

- Put several references to help the player orientate in the level

DON'T

- Let the player see the creature from too far away

- Have too many and too long corridors

- Create environment elements much bigger than the creature

GENERAL DESCRIPTION

When we design a new level we take several things into account :

- How much time will the player spend in this area?

- What is the goal of this area?

- What skills do we want to challenge?

- What species can the player encounter?

- Can he already use Flash or Recorded Sound?

- Where will be the specific landmarks to help the player navigation?

- How does the player enter the area?

- How does the player leave the area?

In the vertical slice level, the player will access the area by following a rare bird and trying to take a picture of it. The creature appears in the middle of the first bay and will swim up a large river, those moments are made to let the player have time to make his first pictures of the beast. At this Kaiju Spot when the creature surfaces, there are some shooting opportunities with specific animations.

At the end of the Spot, when the creature rests on a big rock, the journalist will ask the player to take close shots. As the player advances to get really close shots with the Flash, the creature gets annoyed by the tiny drone and dives underwater, creating a wave that breaks the drone.

LOW-LEVEL DESIGN : DETAILS OF THE FIRST BAY

The player arrives at the beginning of the zone through the jungle. At some point, he encounters a small pond and follows the stream going out from it. Following the stream, the player enters a grassy canyon, the stream passes under big rocks. At the top of those rocks is a rare bird, belonging to the player's documentary checklist. The journalist asks the player to take a picture of the bird, sadly the bird flies away when he approaches it, starting a chase between the bird and the drone.

The bird is here to maintain the drone just above the stream and ground, it follows the stream path. The bird gets out the jungle canyon by passing under a rocky arch, still following the stream, and arrives on a large bay. The bird stays less than a meter over the sea water and continues its path offshore. Arriving in the middle of the bay, the player is just close enough to take a picture of the bird, at this right moment, an enormous creature jumps out the water in front of the camera.

The creature jump is one of the picture opportunities offered by this level. Once the beast starts swimming to the river at the entry of the bay, the player has multiple times to take pictures of it.The creature's path, starting with the jump out the water and ending with the first dive, is essentially straight and slow. It's the first time the player can see the creature and has to follow it. It has to remain simple for the beginning.

When it has run up the river to a large cliff, the creature dives into an underwater tunnel to pass through the cliff. The journalist orders the player to go into some small rocky tunnels in the cliff, maybe it will lead him to the continuation of the river. This small path is made to force the player swap in "Photograph Mode" and pass into a confined environment. Just after those tunnels, the player will arrive on a large half-closed water cave. The alternation between confined spaces like those tunnels and large spaces like a water cave helps to amaze the player.

●	ROCK PILLARS	▨	ROCK TEXTURE
▲	CLIFF LABYRINTH	▨	JUNGLE
⬟	NATURAL ROCKS	▨	SAND
🎥	PLAYER START	▨	UNDERWATER SA

🌀	TURBULENCE		
—	CALM / SEA	▨	STREAM
⤳	STRENGH & FORCE OF THE FLOW	▨	RIVER
		▨	SE

GAME SYSTEM

In this chapter, the game systems evoked are how the game can save the drone's progression and the difference between saving the progression and saving the game state.

Then the drone's fragility aspects will be explained by what happens when the drone collides with something, that leads to the explanation of the game over event: how is it caused and what are the consequences.

SAVING SYSTEM
MANUAL SAVE
AUTOMATIC SAVE

DRONE FRAGILITY

GAME OVER

SAVING SYSTEM

MANUAL SAVE

Whenever the player uploads the drone's photos, the progression is saved.

The player can manually save his/her game state at any moment using the "SELECT" menu if no checkpoint is active. The game state concerns the location of the drone, the photos that the drone is currently carrying on its memory card, the hints discovered in the current mission.

The location of the fauna is not saved in the game state, meaning that if a player quits the game and comes back, the fauna will have moved as if the life goes on while the player is not there. However, the drone will be at the same position with the same photos on its memory card.

The player has to be careful with saving the game state, because this save is lost whenever the drone gets lost or destructed because the game state save is not about progression, in opposition with the upload of photos.

SAVING SYSTEM

AUTOMATIC SAVE

While entering a creature spot for a mission, a checkpoint is activated that keeps in memory the photos carried by the drone at the moment it entered the mission area. The checkpoint is deactivated at the end of the mission when the player uploads the drone's photos.

Out of a checkpoint, the game state is automatically saved every 2 minutes in case the players quits the game without saving it.

DRONE FRAGILITY

If the drone collides with something at a speed inferior to %NormalSpeed%, it's not damaged.

If the drone collides with something at a speed between %NormalSpeed% and %DangerousSpeed%, artifacts will appear at the impact and progressively disappear in a few seconds.

If the drone collides with something at a speed superior to %DangerousSpeed%, the screen goes suddenly black and it's "game over".
Note that the fragility of the drone only considers the speed of the drone.

As the player can actually lose the photos carried by the drone, it's important that this loss doesn't happen on a simple mistake of the player. That's why only the dangerous speed can cause a game over and collisions at a lower speed only give a negative feedback.

GAME OVER

The game over occurs whenever the drone gets destructed, loses its signal or fails a mission in a Kaiju's spot.
Its inconvenience comes from the loss of the pictures carried by the drone that results.

The game over is designed to make the player embrace the fact that the drone is valuable and fragile. The player has to care about controlling its speed and trajectory.

Cause	Destruction	Signal lost	Mission failed (Kaiju Spot)
Happens when	The drone hits something at speed > dangerous speed	The signal is lost	The player failed to take enough pictures ordered by the operator
Sign Game Over	Black screen (cut)		Fade to black
Consequence	Photos on the memory card are erased		Photos taken since the player passed the checkpoints are erased
Place to restart (Free exploration)	Last upload		x
Place to restart (Kaiju's spot)	Checkpoint		
Sign Respawn	Fade to game		

GAME ARCHITECTURE

In this section you can see the navigation and validation process of the game's menus. We tried to restrict player's input to a minimum.
The goal of this architecture is to lead the player to his/her goal with the least possible validations.

There are 3 menus in which the player can navigate:
Start menu, to create or join a game
Pause menu, to quit the game or access the settings screen
Gallery, for managing your photographs

START MENU   **PAUSE MENU**   **PHOTO GALLERY**

GAME ARCHITECTURE

START MENU

Settings

1st validation

Continue | New game | Load game | Settings | Credits | Quit game

2nd validation

Slot 1
Slot 2
Slot 3

Slot 1
Slot 2
Slot 3

Brightness
Controls
Audio
Subtitles
ON/ OFF
Highlights

Confirmation

3rd validation

Launch the last played save | Launch a new game | Launch the save state of the slot | | Credits screen | Quits the game

Final outcome

PAUSE MENU

					1st validation
Back to game	Save game	Settings	Back to main menu	Quit game	
		Brightness Controls Audio Subtitles ON/ OFF Highlights	Confirmation	Confirmation	2nd validation
Close the pause menu	Saves the current game state		Main menu	Quits the game	Final outcome

PHOTO GALLERY

	1st validation	2nd validation	3rd validation
		Creature	Slot 1 / Slot 2 / ... Slot N
Cloud		Area	Area 1 / Area 2 / ... Area N
		Player's photos	Slot 1 / Slot 2 / ... Slot N
Memory card		Slot 1 / Slot 2 / ... Slot 15	View full size / Delete

4th validation	5th validation	6th validation

Pin
Delete

Select a thumbnail

Slot 1
Slot 2
... Slot N

View full size
Delete
Pin

Use sound as Play Sound Action

Track species

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ART DIRECTION

We sticked to the same art direction throughout the whole conception process. The setting and main intentions remain, but the art style has evolved towards a semi-realistic environment instead of a stylized one.

Working together with visuals, sound, narration, and programming, we want to deliver an immersive and striking experience to our players.

ENVIRONMENT

CREATURE

EARLY CONCEPTION

CHARACTER AND FEATURES

ANIMATION

SOUND DESIGN

THE DRONE

ENVIRONMENT

Each episode take place on a specific island with a fauna and flora of its own.

For the first episode, we wanted to create an island paradise in which we would start in a believable environment with sandy beaches and lush tropical treetops inspired by the Carribeans. Those typical landscapes and vegetation are known in the collective unconscious.
Environment is also very present in the ambient sound of the game. To give a sense of coherence, we wanted to capture the feeling of flying in a lively environment. We have to consider how the place sounds. That's why you can hear a lot of different bird species singing and moving when flying in the forest.

All of the records were found on specialized ornithology websites to build a coherent and accurate biome, using birds native from the same area (for this episode bird and insect sounds mainly come from tropical forests in the Carribeans).
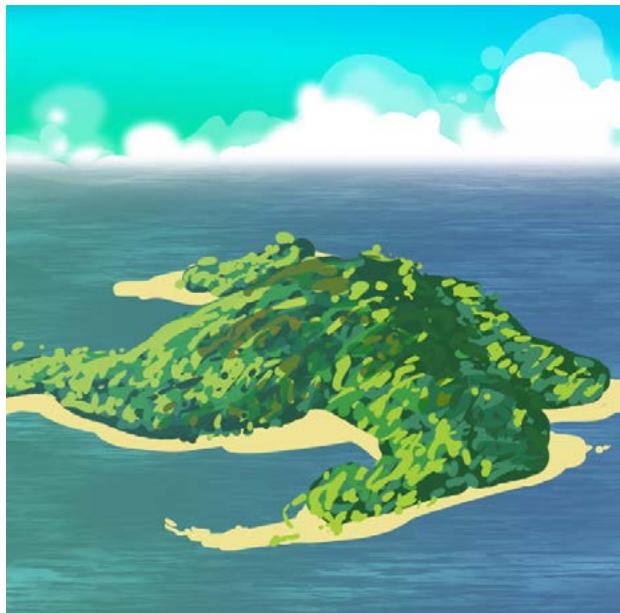
As a player explores the jungle, he will discover a stranger and stranger environment, with a more unexpected flora and colored atmosphere, suggesting the player that it is actually not a simple and normal island and that he might discover unexpected creatures too.

The general atmosphere of the jungle, the flora and the fauna are actually evolving because you are getting closer to the beast, as if that gigantic creature had an impact on the environment as it evolved and grew up itself, the colors of the vegetation looking more like the ones he displays.

CREATURE

EARLY CONCEPTION

From the early stages of the concept, the creature has been the main objective and character. Following the will to give the player awe instead of fear, and the naturalistic vibe of the biological documentaries we depict in the first episode, the creatures that the player will encounter barely hold any similarities with its Japanese equivalent. Early on, the inspiration came from living animals, rather than fantastic creatures or extinct ones. As the character the player would look at the most, every giant creature in the episodes should display some specific features related to its role, and potentially react to each other.

Isolated on an archipelago, all creatures have to be able to swim. Whether they are preys or hunters, their size forces them to roam on different islands for food.
The creature of our first island would be a placid fish eating creature. One of our main intentions was to make it striking for the eye of the player, with lots of details. Gathering data, we decided to use features of caterpillars and sea slugs mainly, to convey this feeling. As the creature would be a mix of several others, it was important to think about its behaviour to build its body. The narration was closely knitted as the creature's appearance evolved, as well as the sound it would produce.
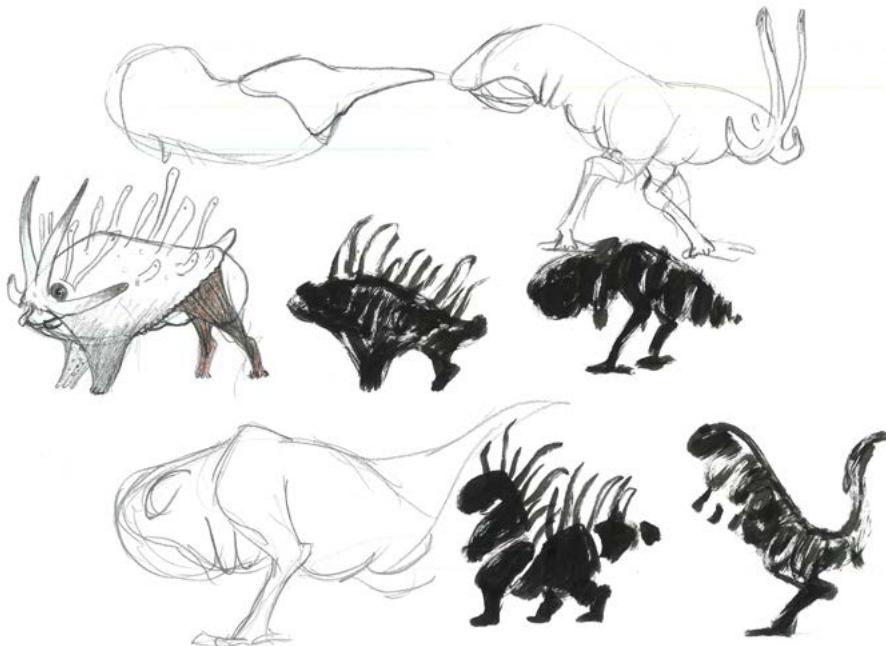
CREATURE

CHARACTER AND FEATURES

To understand better the final creature's design, we need to understand better its actions (eats fish > big whale mouth, swims and goes on land > powerful terrestrial legs; uses front legs to swim, glowing tentacles and horns > sensors and lures for fishing, helps for deep dives and caves, crab eyes > works on land and in water, face on the tail > not the biggest creature by far, uses it against predators).

As a massive creature with stumpy legs, escaping from a predator on land would be difficult. The beast displays a head on its tail to frighten other giants when it is cornered. With this face looking right at them, and the back tentacles changing shape, the effect is immediate. If close to the sea, the creature will dive deep and far away to avoid confrontation. In the game, giant creatures can look at you, to enhance immersion, but also to give you the opportunity to interact, using a flash, or playing a sound at them.
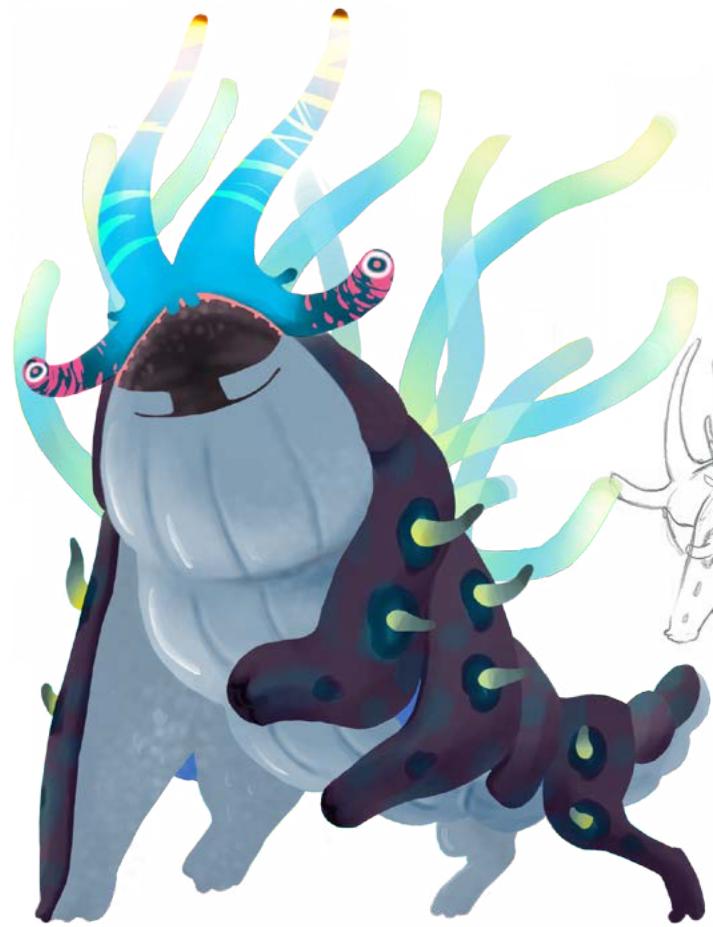
CREATURE

ANIMATION

As a 45 meters high creature, animating a creature as swift as a cat would be unrealistic, and would not convey a good sense of weight. To move such a mass, the beast has to move slowly and is not very flexible. In addition to the main movement of every animation, we use the tail, shoulder fat, flexible throat and horns to simulate the muscle shockwave triggered by the movement. Every animation was made by hand without any motion capture, but tries to convey the creature's intentions in the best way : the drone is almost insignificant and does not bother at all the placid animal.

To see animations of the creature:
www.sketchfab.com/jutruc

Animation of the first sight of the creature, doing a huge leap out of water.
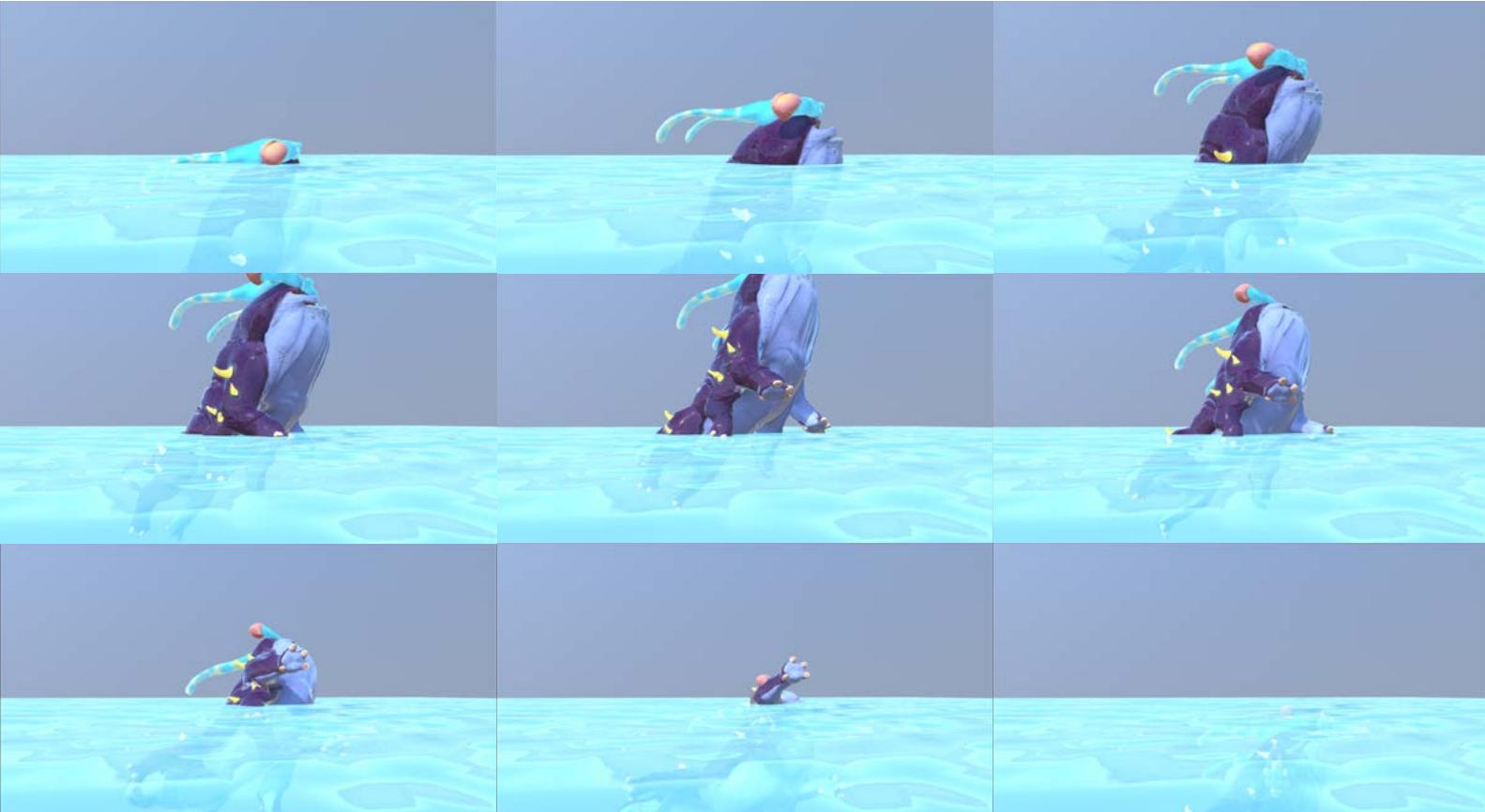
CREATURE

SOUND DESIGN

As we said before the creature should not scare the player but give it the will of discovering how this creature lives. That's why it doesn't sound like a Japanese kaiju. It shares more specificities with blue whales and frogs than with carnivore dinosaurs. The player also needs to feel the weight of the creature when it's moving and that's why every movement of the beast is designed to make a lot of rumble, water splashes and is so present in the audio mix of the game.

THE DRONE

The drone is never showed to the player aside from the shadow it project, thus why it is almost exclusively represented by sound.
We want the player to be aware of the environment, the sound of the drone has to be as quiet as possible while still providing feedback for drone speed and the geometry of the environment. Therefore it's mainly composed of wind sounds and a few sci-fi synthetic sounds for the UI.
One of the goals of the drone movement is to give a sense of presence in the environment, which was one of the problems in our early prototypes.
To accomplish that, the drone movements triggers environmental sounds under certain conditions. For example when flying over grass, foliage or water, the player will hear these elements move and produce sounds according to the current speed of the drone.
In the end the drone sounds like it's blended in the island ambiance.

Concerning user interface, we wanted to create something between real system interfaces (aircraft, drone) and sci-fi systems. Nowadays, a lot of movies showcase fancy user interfaces for their sci-fi computers, spaceships or even smartphones. We thought that real drone interfaces were rough and not very user-friendly. However, the information data they display are very useful for the user.
We started to create a fictional but functional interface. These shapes are designed to show data or behaviors depending on what mode you are flying, the shape of the interface becomes modular. Also, we adopted simpler and fancier shapes with solid colors.
We added a very thin grey stroke around all our UI elements make them more distinguishable in VR Headsets. Finally, we reached an aesthetic and minimalist design which doesn't become inconvenient for the
player's flight.

TECHNICAL CONCEPTION

Rendering a living and breathing environment is quite a challenge for the time of this vertical slice. To achieve it, we splitted our ressources between the creature creation and the environment design, once again working all together to create the feeling of marvel we always wanted for the game.

WORLD DESIGN

ENVIRONMENT ASSETS
ANIMATION
SCALE ISSUES AND
THE BIRD

CREATURE BEHAVIOUR

CHARACTER PIPELINE
BRINGING ANIMATION
IN UNREAL

SOUND DESIGN

AMBIANCE
THE CREATURE
DRONE BEHAVIOUR
MUSIC

WORLD DESIGN

ENVIRONMENT ASSETS

The trees of the creature's island were made using the intreecreator, allowing the use of our own leaves and bark textures. We were able to create any shape to make our intentions concrete. We made two ambiances for the environment. The first being a typical jungle with big barks and big leaves, tall palm rees, lianas around the barks (thanks to smartspline), green plants and grass. The second, more fantastic, with stranger shapes of trees, phosphorescent lianas and unexpected plants, grass and leaf colors.

Low poly big rocks and pillars were created in 3DSmax, and textured in Substance Painter with very detailed normal maps. With a handful of them, we were able to make the illusion of an large quantity of rocks, with rescales and rotations, but also with a material that was created to place moss texture at different places on the same rock, so it would never look the same. A mountain was also created in 3DSmax to fake a far away landscape and create the illusion of a very big island to explore.

WORLD DESIGN

SCALE ISSUES AND THE BIRD

To make the creature even more gigantic, we had to place elements with sizes known by everyone. The trees and plants were a good start but weren't enough to make it seem as big as we wanted, due to the fact that it is never close enough to the jungle for one to be able compare sizes. This is when we thought of a bird getting close to the beast and leading you to it. The bird was rigged and animated in 3DSmax, and textured in substance painter.

CREATURE BEHAVIOUR

CHARACTER PIPELINE

Creating the beast required several softwares and a full-time graphic artist, following the classical character art pipeline. Using ZBrush, the first mesh of the creature was set, with a high level of detail because of the creature's size. We defined skin folds and tendons and switched many times to a «wet» material, to see the closest feeling we would get in game before having our texture. To stay practical, we splited the creature in several parts on which we came back several times to give it the best look. Then switching to Maya to make a viable character for the game engine, the retopology of the model lowered the number of vertices to 14 000, which is very bearable.

For the rigging, we used Advanced Skeleton, a powerful Maya plugin. It helped build a functional hexapod bone system to later animate it. Using this plugin, the bone setting and naming process were sped up. The creation of handles to select the limbs quicker was another ability, that would be more than welcome during the animation creation.

The skinning system was way less performant, andwe had to correct many errors before the muscles moved in a proper way. This additional piece of software also helped us avoid losing two weeks to build a functional IK system, locking the creature's feet to the ground independently to its other movements. That would be more than necessary to make the beast walk and react realistically. By the end of this step, the creature was standing on its six feet, ready to be animated.

Animating this creature revealed itself being more of a challenge than expected. With its unusual characteristics, such as the eyes, wide mouth and front legs bound by the elbows, some of the movements imagined for the creature had to be thought again. For example, sitting is a feat for it. After animating a few movements, we noticed some very disgracious deformations in the character in game and decided to double the vertices number to cancel this effect. But this required starting over all the integration in Unreal.
To animate better, we used another free plugin, Studio Library, that manages poses, selection sets and animations in a single library. It allowed us to try out different movements quickly, merge animations together, such as the mouth and the rest of the body, select specific parts of the body quicker.
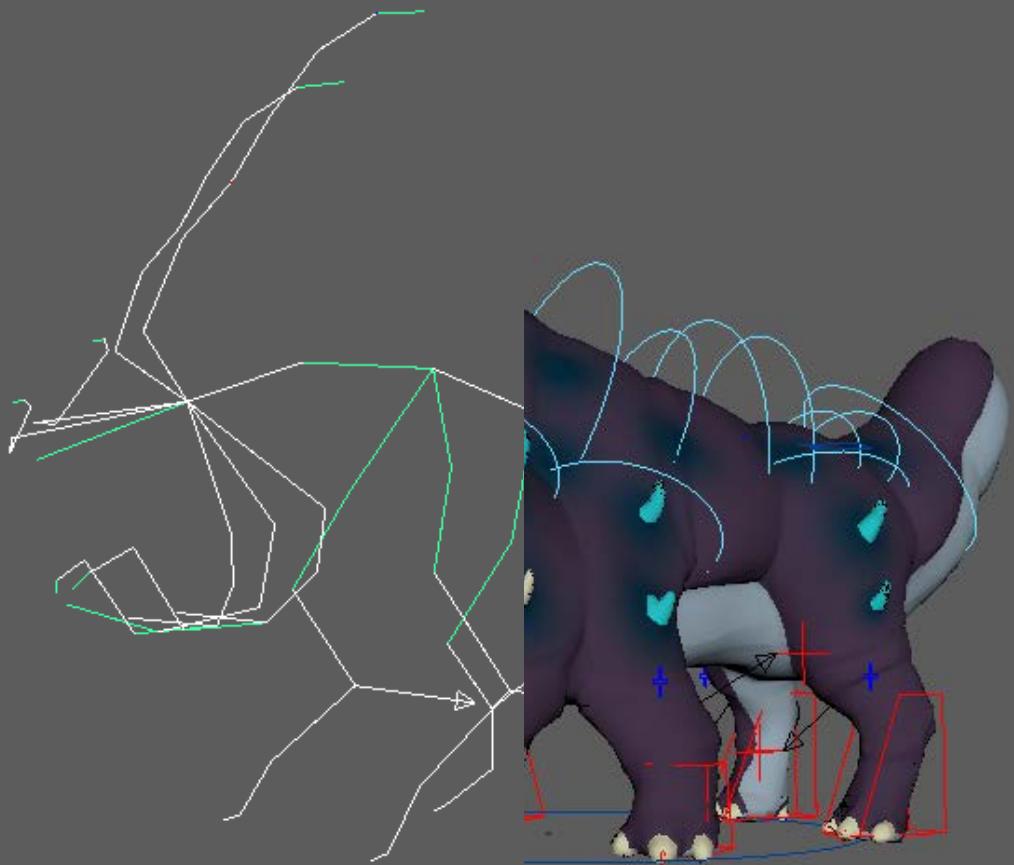
Finally, we used Substance Painter for the creature's textures, as it would allow us to make very large, bumpy and detailed skin. With different parameters, the creature's skin will appear always wet and we achieved to render the eyes and glowing parts of the body correctly. Painting directly on the body using pre-baked rendering materials greatly accelerated the texture creation. On this phase only did we add barnacles and other wounds or veins to the creature, that will make it even more believable, and on the same level of detail as the rest of the environment.

CREATURE BEHAVIOUR

BRINGING ANIMATION IN UNREAL

During the completion of animations, the creature went under several tests to check the transitions between them. A few problems emerged, like the orientation of the animations, and the error after improving the vertex deformation, that forced us to export the animations again.

The animation integration was closely done with one of our developers, dedicated to the shaders and animation. The final creature is made of several parts: the body and the back tentacles. It was more simple for our workflow to create one tentacle, animated in Maya and then duplicate it in Unreal, and attach it to the spine bones. We gained animation time and a dynamic shader, making them look like acorn worms and bringing even more life to the character.

In addition to the keyframe animation done in Maya, we added several features to the creature to make it even more realistic.

● Some physics, in the tentacles bones would help us feel the weight of its movement, and diversify their idle movements. The same occurs with less intensity on its horns, that display specific movements depending on the action.

● A "look at" feature was also designed, meaning the creature can look at the player and follow its movements. Selecting specific bones in our creature's eyes and head, we can put rotation values where it can turn its head and to what extent.

● We created shaders for the tentacles located on the back of the creature. It is intended to create a dynamic material in which color and brightness change like cells over time, in order to highlight the movement and shape characteristics.

SOUND DESIGN

AMBIANCE

The Ambiance is split in multiple types of layers:
3D objects containing birds, insects and the creature. Quadraphonic ambiances containing detailed forest, lagoon and cave sounds. Ambisonic ambiances containing a less detailed bed layer.
The use of both Quadraphonic and Ambisonic ambiances is due to the pros and cons inherent to those sounds. Ambisonic offers a very realistic ambiance but isn't very precise in spatialization so it can be used for bed sounds that don't need to be spatialized. Quadraphonic is a bit less realistic but gives a better feeling of spatialization.

All the ambisonic ambiances were recorded using a Zoom F8 and a Sennheiser AMBEO microphone because the recordings that can be found in the different existing sound banks were too detailed to be used the way we wanted to.
To have the sound we wanted, we went recording those in a pine forest near the sea during winter so we could have a windy ambiance with a distant sea rumble, a few branches and leaves moving and no bird sound. We also recorded small waves surrounding a small strip of sand to make the lagoon ambiance.

SOUND DESIGN

THE CREATURE

From the beginning of the project, we thought about the creature as the main character of the game. Therefore it needed a specific and recognisable sound identity.

We spent a lot of time recording foley to design a unique roar and presence for the creature. We used some PVC pipes for the tone of the roars and some random objects we found to give some presence and organicity to the sounds. We didn't want to use synthesizers to keep the scream as organic as possible.

Using the Unreal Engine animation system helped a lot the integration of sound to the creature's animations. The animation is displayed with a timeline on which the sound designer can add animation notifies to trigger the sounds on specific frames. For the creature a walk cycle contains 3 notifications : Front and back paws rise up → Center small paw hits the ground → Front and back paws hit the ground. The Center small paw rise doesn't produce sound because it is less important and it makes the sound too messy and difficult to understand.

This integration solution is preferable to a single marker at the launch of the animation because the speed of the animation can vary in real time.

WWISE water depth record:
www.bit.ly/2EG57Sp

The sound of the creature walking in the water also varies according to the depth of the water it's walking in. This is accomplished using a raycast in Unreal detecting the water depth and a blend track in Wwise crossfading between 2 types of sound.

Previewing Animation kaiju_walk_test

LOD: 0
Current Screen Size: 1.77
Triangles: 117418
Vertices: 62308
UV Channels: 1
Approx Size: 3714x7001x4766

Z
Y

◢ Notifies

AkEvent   AkEvent   2   +

AkEvent   AkEvent   AkEvent   AkEvent   1   +

◢ Curves

Add... ▼   Total Number : 0

◢ Tracks

Additive Layer Tracks ▼

Animation : kaiju_walk_test   Percentage: 50.99% CurrentTime: 4.228 / 8.292 (second(s)) Current Frame: 126.46 / 248 Fram

SOUND DESIGN

DRONE BEHAVIOUR

In order to make the drone blend in with the ambiance but still give useful feedback to the player like speed and presence of objects close to the drone, we used a blend tracks system in Wwise with records of different wind speeds.

WWISE drone wind:
www.bit.ly/2suaSOf

Layers of wind synthesizers are also added to them to do some fine tuning on the overall reaction of the sound to the received speed value.

In order to detect what surface the drone is currently flying over there is a raycasting to the ground and if the altitude starts to be low, the player will hear grass or water depending on the surface it's flying over. These sounds of grass and water also work with a blend track, changing the sound according to the current travel speed.

WWISE drone surface:
www.bit.ly/2GdUIjf

The speed of the drone impacts the presence of environmental sounds in the mix to feel a sensation of speed that should not be hindered by the environment when the speed is high, the player is focused on controlling the drone and not taking pictures or listening to the birds.

SOUND DESIGN

MUSIC

The music of the game is composed of a few short segments playing on key moments in the player's progression. It plays every time the Cardinal bird flees. This bird is used to lead the player to the Creature's spot. It works as a harmonic progression resolving on the music played when we see the Creature for the first time. The core idea in the composition is to show the mysterious, stunning but playful nature of the creature. The music is mainly using 3 instruments: the duduk, the cello and the piano. First because we had the chance to record them live which gives much more emotion and nuance to the music than virtual instruments. Then because the musical identity of these instruments corresponds to the initial idea we had.

USER EXPERIENCE

We want to create something between real system interfaces (aircraft, drone) and sci-fi systems. Nowadays, a lot of movies create and show fancy user interfaces for their sci-fi computers, spaceships or even smartphones. We thought that real drone interfaces are rough and not very user-friendly. However, the information data they display are very useful for the user.

We started to create a fictional interface, but thinking functional. These shapes are designed to show data or behaviors. Depending on what mode you are flying, the shape of the interface becomes modular. We adopted more simple and fancier shapes with solid colors. We added a very thin grey stroke around all our UI elements to have a better display into a VR Headset. Finally, we reached an aesthetic and minimalist design which does not become inconvenient during the player's flight.

GENRE PROBLEMATICS

MOTION SICKNESS

When we started our research about VR topics, the main player's issue was the embodiment of the player. All the games using a vehicle as a mean of transportation confront the player to several issues. The reason is always that we don't know how the player reacts to the movement he inputs. The major issue is well-known by transports companies: Motion sickness.

It's provoked when the player doesn't move in the real world, but the environment he's watching does.

In our case, the player is sitting on a deskchair and controls a drone he can fly everywhere: increase or decrease altitude, fly forward or backward, etc. To be more specific, we've got an issue with the X-axis rotation. It allows the player to rotate the drone in the direction he wants. In our first prototype, many people felt nauseous and couldn't investigate the level anymore.

GENRE PROBLEMATICS

SOLUTIONS

The resolution:
The first sight in the headset will be critical for the player. We need to take the right parameters to display perfectively our experiment. First, the frame rate. Our game needs to run at 90 FPS. Under this limit, the framerate causes a big issue with the player. Then, we need to adapt the level of detail of the map. The player must not see the map calculated details just in front of him. This could be a point of rupture during his immersion.

The UI:
Since the beginning of the project, We always thought that a user interface can help to improve the feeling of the player. Like said previously, we already know about some movement that trigger motion sickness. Our intention was to create a sort of cage around the player's view. In this way, watching the UI when the player turns or navigate into the environment can create a feeling of comfort.

The controls:
The player has two way of controlling his drone, it's a double challenge for us, especially about motion sickness. Each of them needs to be intuitive and useful. This is why every mode has been checked many times thanks to playtests. They need to fit with the experience we want. We try to design them to be easily handled and understood by everyone. Finally, we discovered that the shift between these two modes gives to the player a feeling of mastering the control. This particular feeling helps us to contain motion sickness. Why? Because the player can regulate his drone, accelerate or decelerate if he wants more sensations and manipulate it in the way he wants. Our game gives him a stressless and comfortable area where he can experiment and try to find these limits by itself.

CONTROLS – FOCUS ON DISCOVERY

INTRODUCTION

Kaiju Snap is a game which leaves the player alone in a huge environment. That means he will want to experiment all sorts of movement to exploring or just have fun with the drone. Naturally, controls became one of the most crucial questions for us. The goal is to give the player the maximum of command to take properly the drone. But without giving him a very complicated panel of command. We achieve it while giving two different modes of control:

The photograph mode & the speed mode

CONTROLS – FOCUS ON DISCOVERY

PHOTOGRAPH MODE

This mode is the classical way to control the drone. It uses 2 devices to be operational: the gamepad and the VR headset. this mode is designed for small movements and adjusting the photo guideline to take a photo. We prefer to allow the gamepad control for it to gain in precision. Headset movements are too abrupt for this kind of use.

This mode is dedicated to one thing: the liberty of movement. To have the possibility to take the photo that you want. It's the only mode where taking a photo is possible. However, this way of control is far more exigent for the player, because fake movements with the gamepad in VR cause motion sickness more easily. We needed a mode that the player can use to travel longer distances, without efforts.

GAMEPAD

Increase Altitude
Decrease Altitude
Take a photo
Move the drone
Switch flying modes
Rotate the drone

VR HEADSET

Free camera
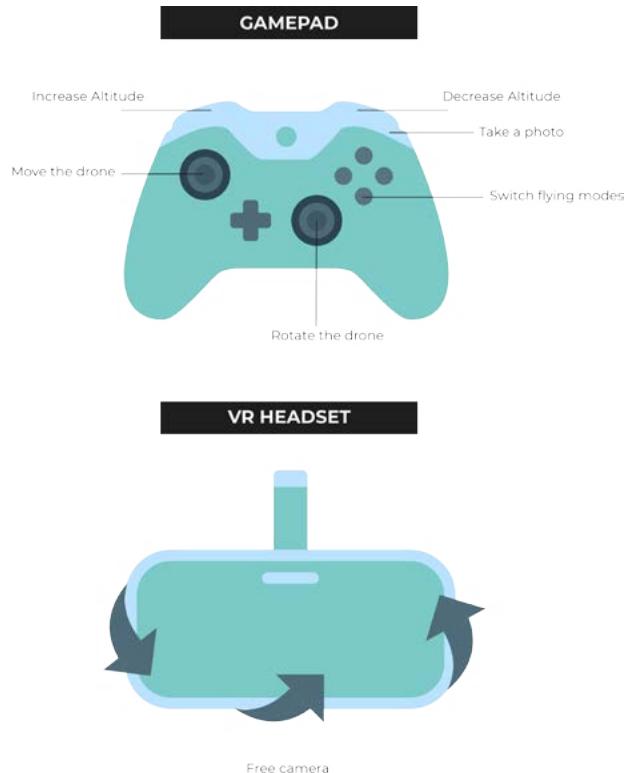
CONTROLS – FOCUS ON DISCOVERY

SPEED MODE

We thought that the photogrqph mode does not allow the player to fly everywhere and enjoy the flight on the environment. This is why we add a different mode: The speed mode. With a constant speed, the player can navigate through the landscape with just his head. This mode of navigation is more intuitive and gives the illusion of flying. But it's more demanding on physic efforts because the player moves his head more than usual. This is the reason why we cannot use this mode as a photograph mode.

GAMEPAD

Increase speed

Switch flying modes

VR HEADSET
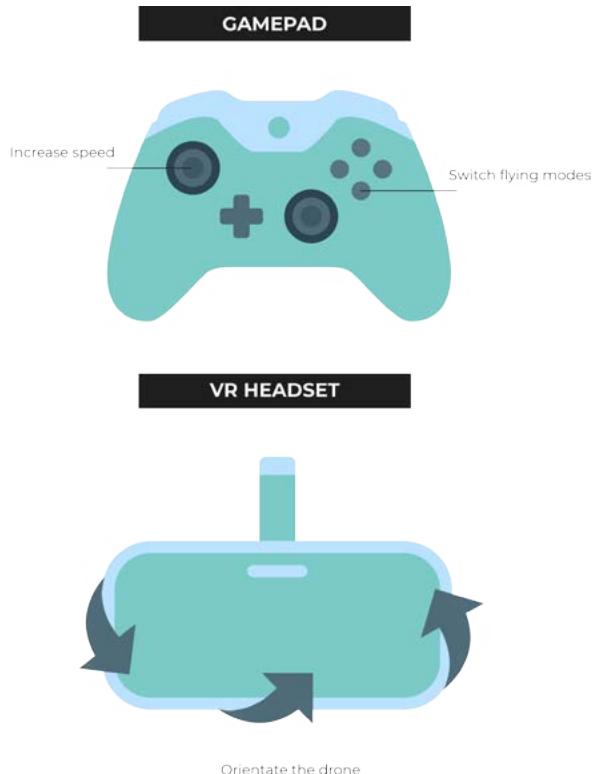
Orientate the drone

USER INTERFACE

When you put the helmet on, our game gives a feeling of liberty, a place where the player can travel and experiment whatever he wants. These feelings are our motto, and all the creative part was driven by this rule. For the design of the user interface, it becomes clear that our desires were to create a minimalist UI. The shapes are angular and fancy. Even for the color of HUD, we want a color that can pass through all the sort of environment. We adopt the white nomenclature for the main data. Colors are requisited to notify the player about some changes on his drone: acceleration, alert, uploading, etc. The reason driving these decisions is simple: we create a game in which the player can capture everything he wants. In this way, the user interface needs to display the minimum amount of information to the player.
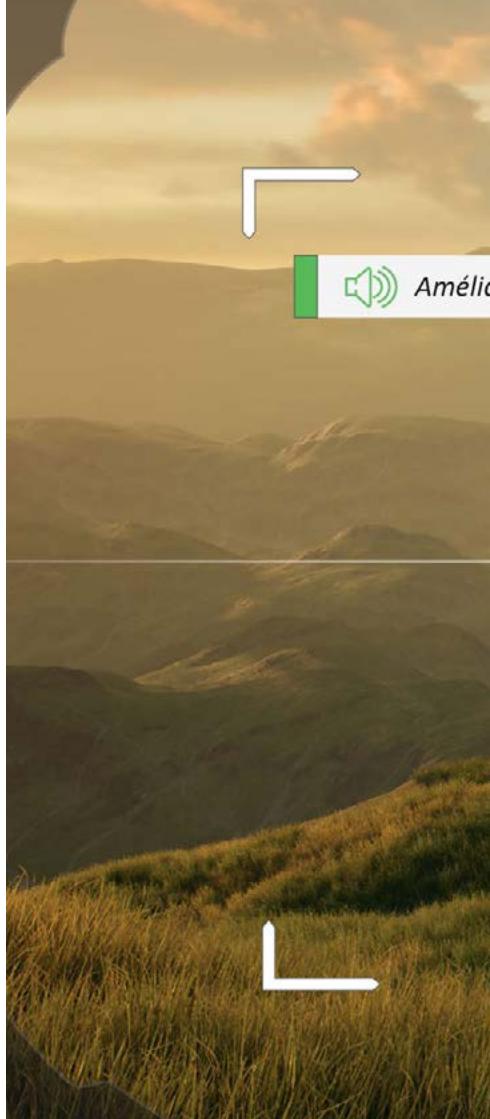
75 E 105 120 SE 150 165 S 195 210 SW 240 255 W
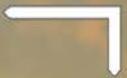
First Encounter

92 Km/s
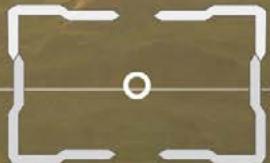
Il nous faut des photos de la bête !

CAM   SPD

PLAYTEST METHODOLOGY

OVERVIEW

Every playtest was created to test a new feature in our game. We really wanted to have player's opinion on our development, on each state of our prototype. Many of our features are perhaps involved about giving motion sickness to the player. It's why this is important for us to have focused on what is good for players, and be able to test and measure that. There are few rules very important for us, and we applied all of them to design our playtest:

● Crafting a unique level design map for the playtest. It's important to have a specific environment to lead test properly. Create a dedicated map for the playtest was perfect to calibrate the experience and be clearer on what the player is allowed to do on the map.

● Always test all mechanics together.
Many of our mechanics work when they gather each other. It's critical for us that the player can access all his drone's abilities upon start.

● Setting different objectives for the player than what is really tested for. When he starts a playtest, the player has established objectives: photograph this item, etc. It's just a reason that we give to show him how to manipulate the drone for example. We prefer to hide the real purpose of the playtest, in this way we can observe the player in more real conditions

SICKNESS SIMULATOR SURVEY

With the playtest, the player needs to fill a special document: a sickness simulator questionnaire. It's a document which indicates what physical and mental bad symptoms appear after a session. The playtester should fill one before his session and one after her.

The questionnaire gives a list of symptoms and the user needs to circle the answer corresponding to his feeling(none - lightly - moderate - violent). Finally, we compare the two tests and display the data in a diagram.

This method gives us insight about what kind of illness people suffer after a session in our prototype. It was a good starting point to redirect research on this or that effect. Then, we try to apply solutions on our prototype. Lastly, this method allows us to compare results incrementally, to see if the implemented solution really works.
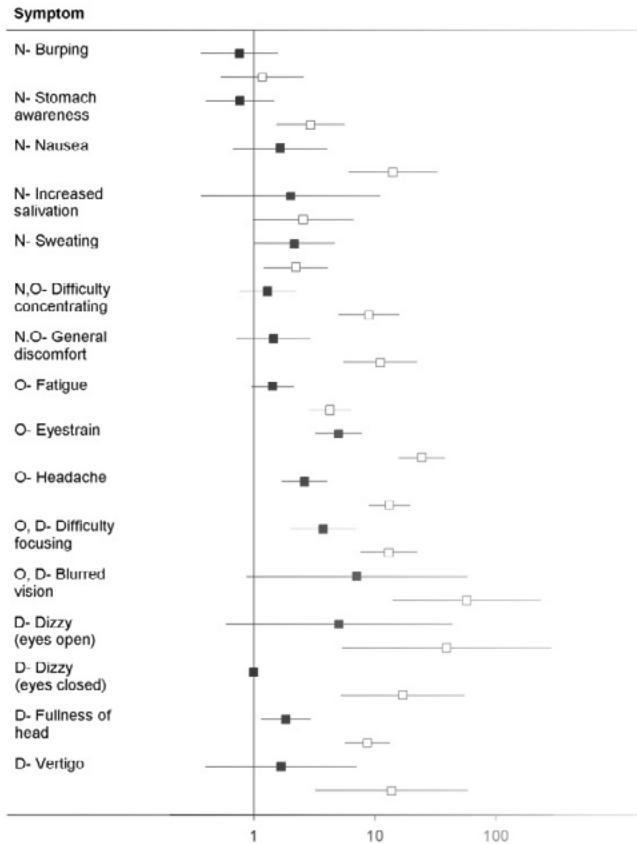
PROGRAMMING CHALLENGES

The first thing we had to do to make Kaiju Snap was to choose the proper tool. To do so, we took in consideration the critical points we would encounter during the development of the game. In the end we chose to pick Epic's Game Unreal Engine 4 for the following reasons:

● The engine natively support VR Headsets which helped us make the game run on both HTC Vive and Oculus Rift.

● The major challenge on making Kaiju Snap is the high poly rendering running at 90 frames per seconds, and Unreal Engine 4 graphic capacity is very well known.

● The engine supports Wwise, a tool our sound designer wanted to use.

● Most team members were eager to discover this engine and work with it.

MECHANICS

DRONE CONTROL BLUEPRINT

WORKING WITH UMG

PICTURE ANALYSIS

CREATURE

CREATURE STARE

SPLINE ANIMATION

BLEND SPACE ANIMATION

WORLD CREATION

MAP GENERATION

ENVIRONMENT

VR OPTIMIZATION

MECHANICS

DRONE CONTROL BLUEPRINT

One of the critical points in making a VR Drone is to take in consideration the big problem of motion sickness. To help our UX designer, we had to make sure all controller implementations propose a complete set of tweakable variables. This set helps us to ensure our capacity to create the most user-friendly controller we can do. To do so, we created a complex blueprint, the DroneControl. This blueprint is at the center of the implementation of all the mechanics concerning controls and UI.
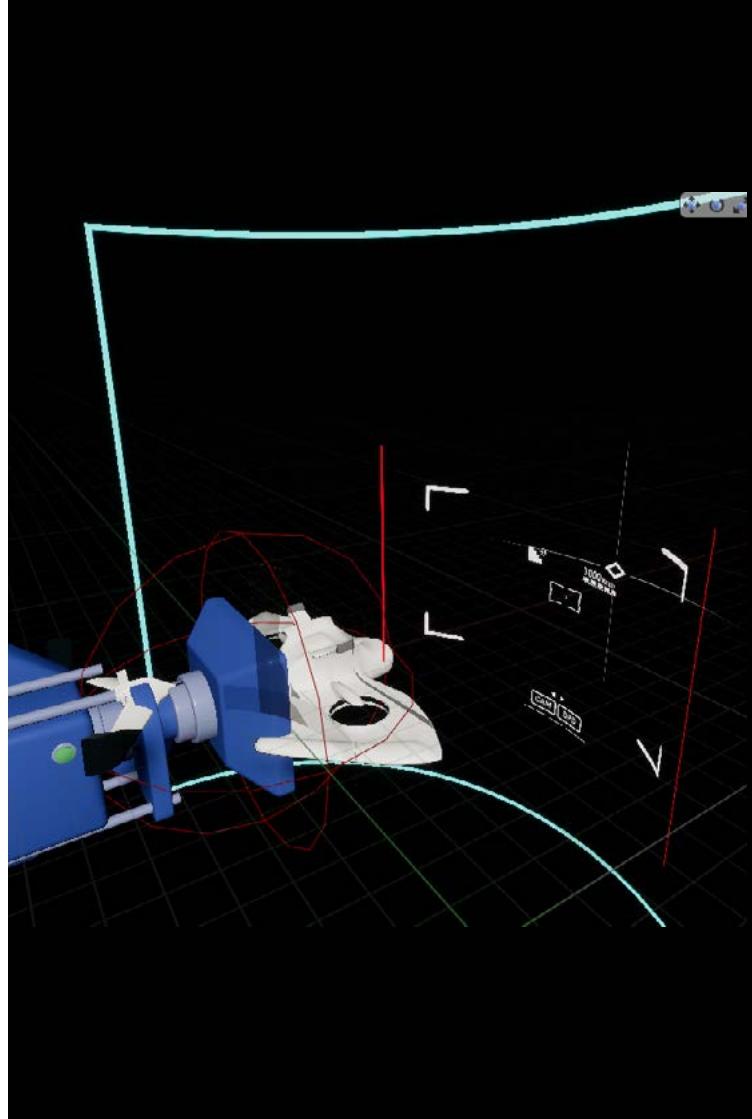
MECHANICS

WORKING WITH UMG

Unreal Motion Graphics UI Designer (UMG) is a visual UI authoring tool which can be used to create UI elements such as in-game HUDs, menus or other interface related graphics. This tool allows us to create different layers of UI which are the main containers of game's feedbacks. They also include a lot of the mechanics implemented to reduce motion sickness. With the animation system included in UMG we could connect the UI blueprints to the DroneControl BP to retrieve the datas needed to animate the UI in reaction to the player's input.

Example of a blueprint activating a UI warning when the drone is too high
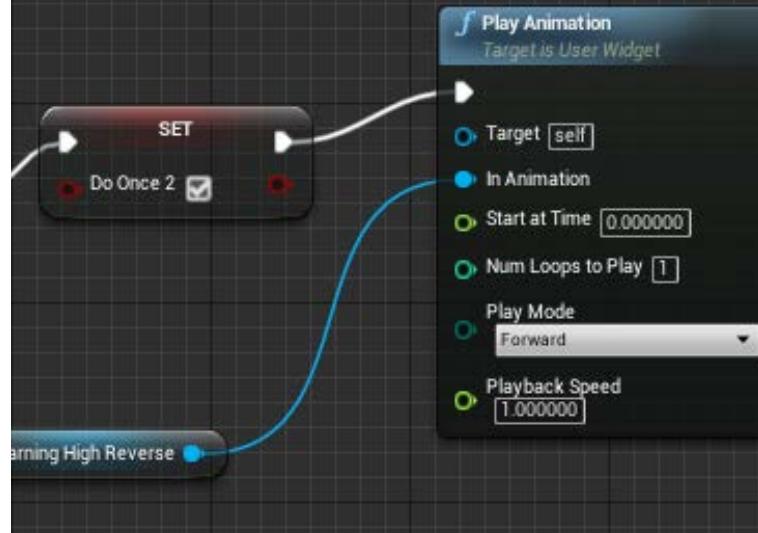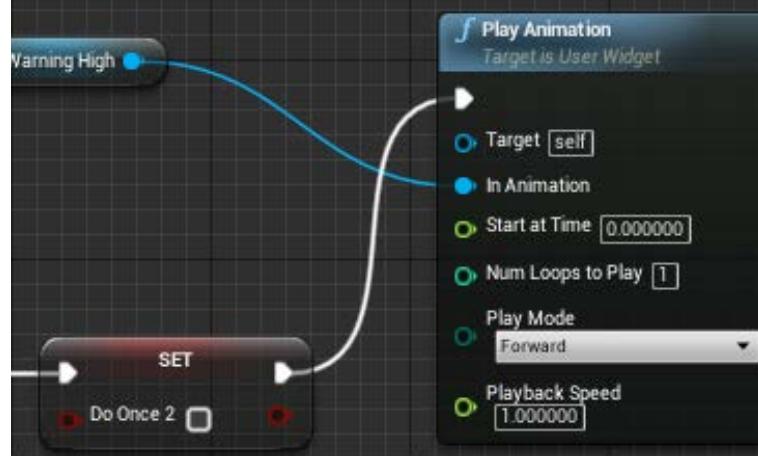
MECHANICS

PICTURE ANALYSIS

Coming from a need for Game Design to be able to photograph various angles of the creature or during a specific animation, the following solution was proposed as first prototype and was afterward kept thanks to its precise results and its ease of adjustment.

The analysis focuses on the elements the player is aiming at. It simply involves applying flat tints to different parts of the object to be photographed (limbs for example), and then through a selection of targets and detection thresholds, the algorithm predicts what has been photographed by the user.

For non-separable objects in subsections or not necessarily complex, the identification is made by taking the object in its entirety without the use of specific colors.

Color swap texture of the creature applied on it

PROGRAMMING CHALLENGES

The photograph is taken by a second camera in front of the drone, and by a post process material results in a texture (of low resolution to decrease the calculation time) showing photographable objects taken in the frame of the camera.

The colors of subsections are saved on the channels RGB of the texture and the identification itself of the object is in the channel of the opacity.
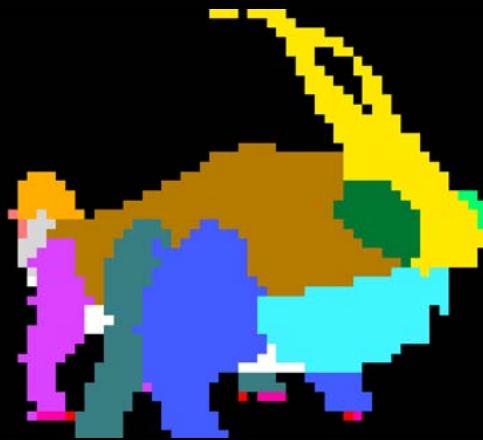
Texture analysed by the algorithm

Taking into account some obstruction (red color)

Taking into account various objects

PROGRAMMING CHALLENGES

The main part of the algorithm is made in asynchronous C++. The result (a lot of structured data) is then transmitted to a blueprint for the gameplay interaction.

For more specific needs, the algorithm can easily evolve and propose more precise features, such as:
Is the photographed object fully in the picture?
Allowing a bigger Field Of Vision and so detect what is outside the camera frame but visible by the player (the UI frame does not take all the field of vision of the player)

```
┌──────────────────┐
│  Player takes a  │
│    pict²ure      │
└──────────────────┘
          │
          ▼
┌──────────────────┐        ┌──────────────┐      ┌─────────────────┐
│   Is there       │   no   │   Player's   │  no  │  Nb of element  │
│ someting in the  │──────▶ │   picture    │◀──── │  in the list >0 │
│    radius?       │        └──────────────┘      └─────────────────┘
└──────────────────┘                                       │  yes
          │ yes                                             │
          ▼                                                 ▼
┌ ─ ─ ─ ─ ─ ─ ─ ─ ┐        ┌ ─ ─ ─ ─ ─ ─ ─ ┐
  List of potential        │ Selection of the│
│ targets seen in ├ ─ ─ ─▶   closest target  │
    the radius      │      │ to the player in│
└ ─ ─ ─ ─ ─ ─ ─ ─ ┘          the list       │
                           └ ─ ─ ─ ─ ─ ─ ─ ┘
                                   │
                                   ▼
                           ┌──────────────────┐
                           │  Is it big enough│   no
                           │  on the picture? │──────▶
                           └──────────────────┘
                                   │ yes
                                   ▼
┌──────────────────┐       ┌──────────────────┐      ┌──────────────────┐
│   Photo of the   │  no   │ Does the target  │ yes  │ Does the limb    │
│ specific target  │◀───── │   have limbs?    │────▶ │ in radius have a │  yes
└──────────────────┘       └──────────────────┘      │    parent?       │──────▶
                                                      └──────────────────┘
```

no

164

Is it big enough compared to the creature?

Is it big enough compared to the picture?

Are the 2 conditions true?

no → Photo of the creature

yes ↓

Photo of the specific limb

Is it big enough compared to the parent?

Is it big enough compared to the creature?

Is it big enough compared to the picture?

Are the 3 conditions true?

yes ↑

no → Is the parent big enough compared to the creature?

no → Is the parent big enough compared to the picture?

no ↓ (from Photo of the creature)

Are the 2 conditions true?

yes ↓

Photo of the specific parent

CREATURE

CREATURE STARE

To make the creature look livelier and to make the experience more interactive, the beast looks at the player as he comes a little too close or passes in front of its eyes.

This look goes through a rotation, of the head and its eyes, according to the position of the player. This modification at the level of the creature skeleton is done by an additive blending only on the bones of his head, between the current animation, walking or roaring for example, and the values of calculated rotations. A maximum rotation has been defined to avoid certain aberrant movements of the head.

CREATURE

SPLINE ANIMATION

The beast displacement control is done via a spline, specific to Unreal Engine, modified for our needs. The passage of the creature on the nodes of the spline is recovered to trigger certain animations at a given time. Its movements speed and its rotation are also controlled via this spline.

BLEND-SPACE ANIMATION

The creature has two modes of movement, swimming and walking. For each we have 3 animations, for moving to the right, to the left and straight. The transitions between these 3 animations as well as the modification of their speed of execution is done via the Blend Space of animation thanks to the values of speed and rotation given by the spline.
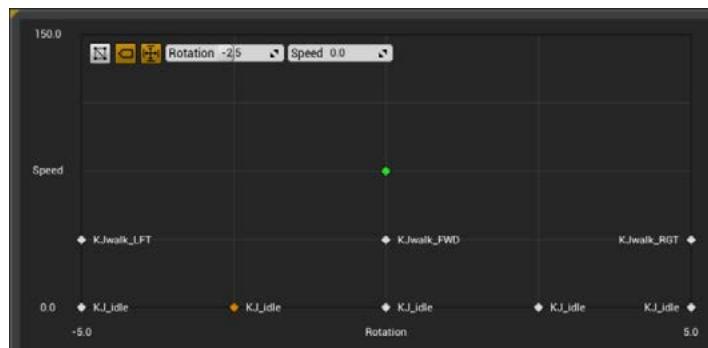
WORLD CREATION

MAP GENERATION

Kaiju Snap needed a vast map. Considering the huge scale approaching about 50 meters of the creature's body and the distance/height of the fast flying drones, we needed a map that would never end. However, it was an inefficient task that took too much time to directly sculpt these huge maps. So, with the efficiency of the work being guaranteed, we needed a way to provide a map with as much support as possible and close to nature. The World Machine was the most appropriate software for our needs and was already a widely used tool in the field. We were able to generate a map that fits our purpose through the procedural generation of World Machine

1. World Machine Map in UE4
2. & 3. World machine 3D preview

1.

2.

3.
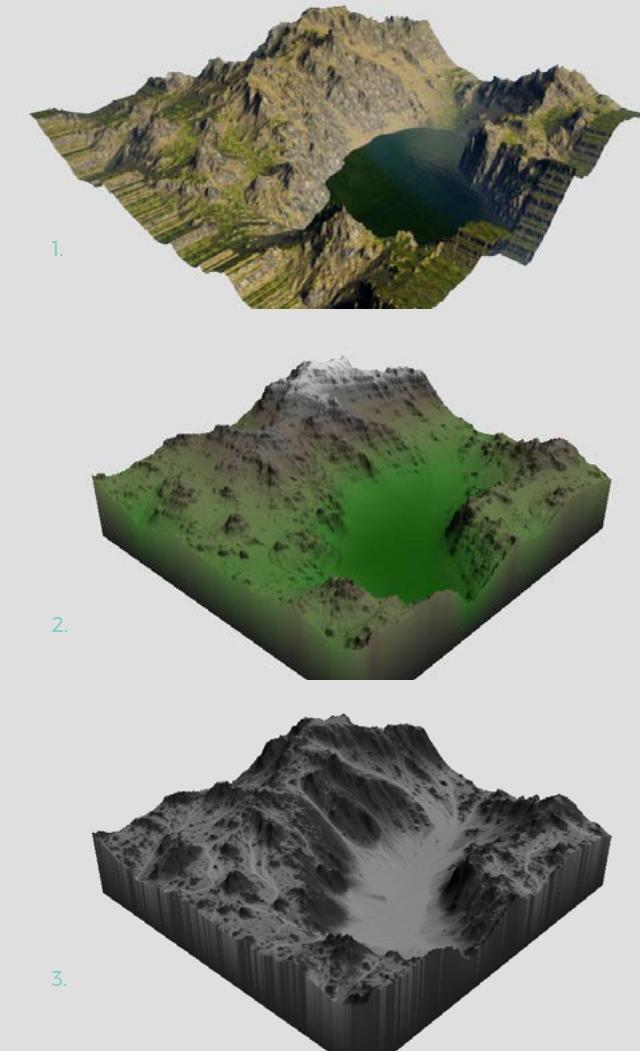
BUSINESS PLAN

Kaiju Snap has been designed as a VR solo game with episodic content released every 2 months or so. In order to see if we can make that project come to fruition, we first have to evaluate the market to elaborate a production plan.

The core target audience of VR games is mostly composed of early adopters between 20 and 35 years old, with an above-average income and a taste for tech. Still, the recent democratization of VRcades may lead new publics to become more familiar with virtual reality.

Therefore the game may attract different targets such as:

- Drone aficionados that will see in our controls schemes a good compromise between arcade and simulation

- Hobbyist photographers that will like to document the fauna and flora

- Nature lovers who will relish to explore and uncover the mysteries of our universe

VR MARKET

DEVICES SOLD BY END 2017
FINDING DATA
VR MARKET ON STEAM LAST YEAR
PRICING
ESTIMATED 'SALES'

FINANCIAL PLAN

CONTEXT
BUDGET
PRODUCTION CYCLES

VR MARKET

DEVICES SOLD BY END 2017

Since its debut in March 2016 with the Rift, it has been very hard to accurately predict how the Premium VR market would grow. Price point, availability, high-end computers and the level of technical knowledge needed to run those devices and softwares, all those factors were not always taken into account by analysts. Yet they played into the success (or lack thereof) of High-Quality VR devices. As a result, the market did not quite take off as expected. By the end of 2017, only 4.35 million units have been sold.

According to Superdata's 2017 "Virtual Consumer Research" report, we should expect Premium VR market to grow by an incredible boost of 300%, reaching 5.2M PS VR and 5.3M Rift/Vive units sold. Those numbers are very encouraging. But they are also very hard to believe. While VR may very well be the next big thing, we have to make sure a small studio could sustain a viable income from sales alone.

Premium VR devices sales until end 2017 (in million units)

● PS VR

● HTC Vive

● Oculus Rift

2,55 (58,6%)

0,95 (21,8%)

0,85 (19,5%)
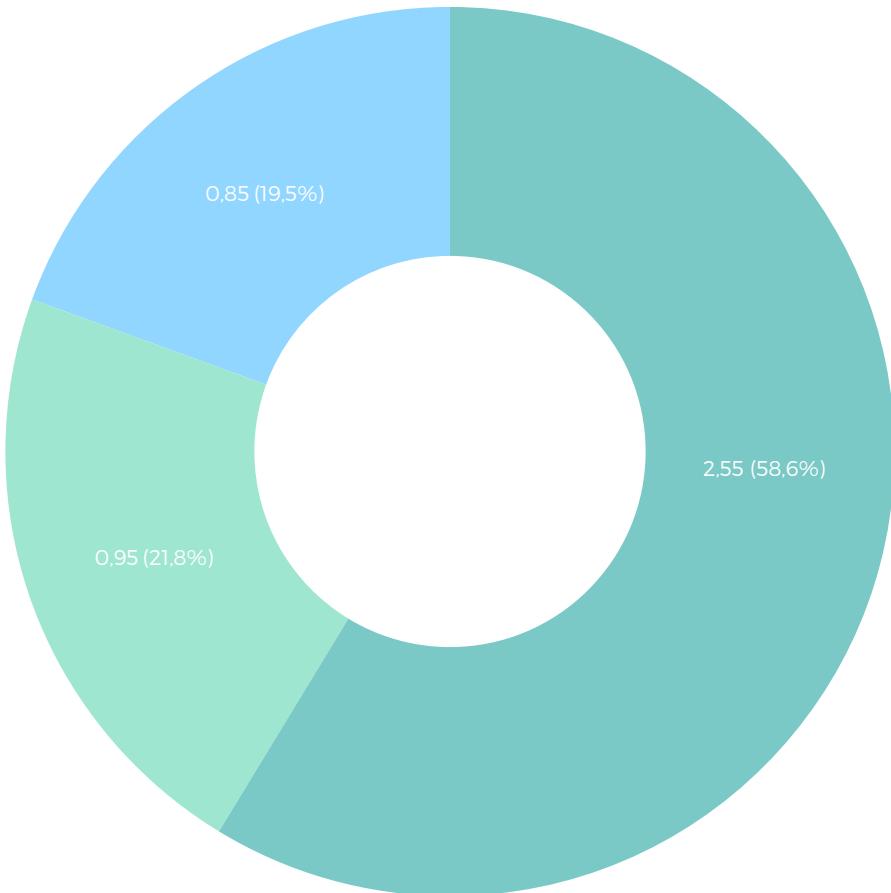
VR MARKET

FINDING DATA

While Sony imposed itself as the leader of the market, with 2.55M PS VR sold, the company has always kept quiet about their game sales. Ergo this makes impossible to estimate market penetration and gross revenue for Console VR titles.

"Detailed market data is hard to find, and it's usually not disclosed by marketplace owners. Even when it is disclosed, it's usually only partial, for promotional reasons, not giving the complete perspective."
Thomas Papa, owner of Mimicry VR independent game studio

As for PC, we have to turn to SteamSpy. Sure, we can sell our games on platforms such as Viveport and the Oculus Store. But Steam has the monopoly on digital distribution. We'll take a look at the PC VR market.

Most of the information below was taken from Papa's blog, where he broke down the numbers of Premium VR games sold through Steam using SteamSpy. His analysis released in mid-January is one of the most up to date and relevant to be found online. We will refer to this article from now on while drawing conclusions of our own.

VR MARKET

VR MARKET ON STEAM LAST YEAR

We start by referencing every VR supported Steam game released on the platform in 2017. We combine "VR compatible" and "VR only" games because both are our direct competitors. We just need to keep in mind that some VR compatible games are also bought by non-VR users, cranking up the numbers up a bit. But that won't be an issue in the end.

PC VR games fall into 2 categories:

- Free

- Premium price

SteamSpy can only sort titles by price range and can make no distinction under 1 USD.

It is interesting to see that out of 1271 VR compatible games released on Steam in 2017, more than 1 out of 5 are free or cost less than a dollar. This is quite a large number and it already tells something about the market. Is it because some don't expect to make any income with the sales that they release their games for free? Or maybe is it because they are released as promotional material? Since we plan on selling our game, we will now focus on titles priced at more that 1 USD. We will now only refer to them as "Premium Games".

VR supported games released in 2017

● Premium titles, 1USD or more

● Free titlesor less than 1USD

288 (22,7%)

983 (77,3%)
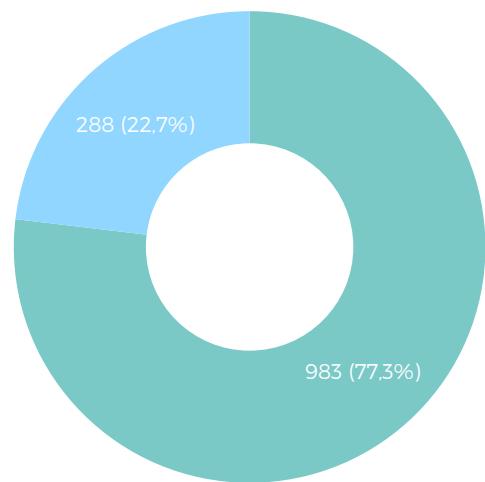
VR MARKET

VR MARKET ON STEAM LAST YEAR

In 2017, 80 Premium VR supported games were released each month (on average).

Nearly a third of them do not have owner data to have their numbers tracked by SteamSpy. Owner number is generally a good estimate of sales numbers but is generally bigger than actual sales due to events such as free weekends. The fewer owners you have, the higher the margin of error. Having no owner can only mean two things: not enough registered owners of that title (less than 700), or that tile being too recent for SteamSpy to track. But Since we are looking at last year estimated owner numbers we can leave the "too recent" reason out of the equation. Owner numbers being higher than actual sales figures, one can safely assume that in 2017, one game out of three released through Steam did not sell more than 700 copies.

2017 Premium VR compatible Steam releases
Priced 1 USD or more & sorted by owner data availability

31,1% (677)
68,9% (306)

● games w/ owner data over 700 owners
● games w/o owner data under 700 owners

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
top	8	13	24	24	17	18	18	32	32	40	39	41
bottom	54	53	62	48	65	62	55	62	45	55	60	56
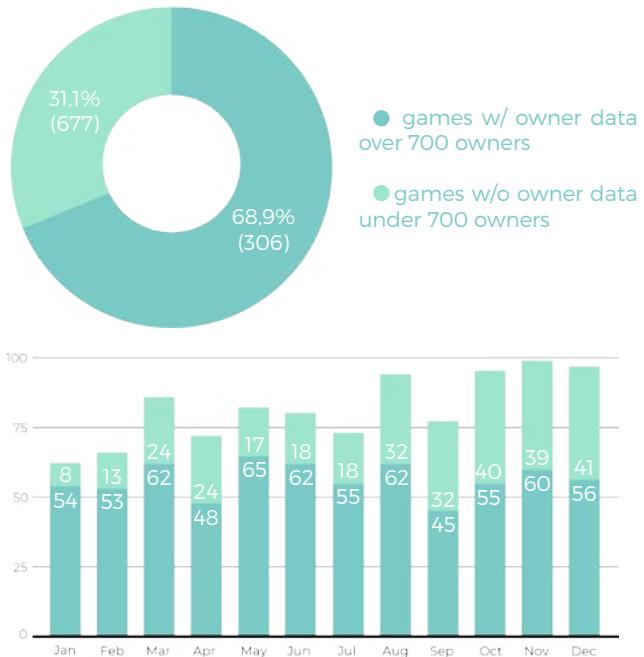
VR MARKET

PRICING

The chart here presents the average price of VR supported titles released on Steam in 2017 each month.

Average price per year: $9.71

Median price per year: $6.99

We can see that the average price per game went from $7.08 in January to $14.13 in December, doubling over one year.

Price development of premium VR titles on Steam in 2017

VR MARKET

ESTIMATED 'SALES'

"Only 12 titles (out of 983) managed to reach more than 50.000 owners. Out of these 12 titles, almost half (5) are also playable in non-VR mode, namely: Scanner Sombre, Everspace, Star Trek Bridge Crew, Project Cars 2 and Space Pirates And Zombies 2. This means that out of all premium (1USD+) VR supported titles released in 2017 (983), only 7 VR-only titles have managed to reach more than 50.000 owners."

Source images are too large to be provided here, please refer to the following links:

Owners by # of owners   http://cpc.cx/ldI
Owners by release date   http://cpc.cx/ldJ

89,5%
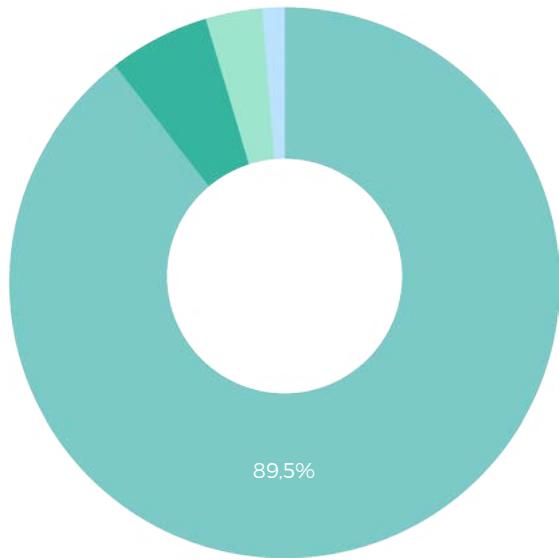
Number of owners of Premium VR games released in 2017 on Steam:

- 0 - 5000
- 5001 - 10 000
- 10 001 - 50 000
- 50 001 - 300 000

As an indie studio with no track record and no marketing resources, our chances to sell past 5000 copies are actually less than 1 in 10.

Zooming in on the sub 5000 owners segment (89,5% of the market) we find there are around 67,3% games that don't pass the 1000 owners mark. Following the same logic and calculating sub-1000 owners probability, there is a 60,2% chance for a new indie studio to sell less than 1000 copies.

We can safely assume that Kaiju Snap would not come close to breaking even if we were to publish the game only on Steam and by ourselves. Thus we need to be published by a larger structure and find other concurrent ways to generate income. On the other hand, there is still a chance for the VR market to expand rapidly and an investor might be willing to take the chance to invest in a big and ambitious project like ours.

67,3%
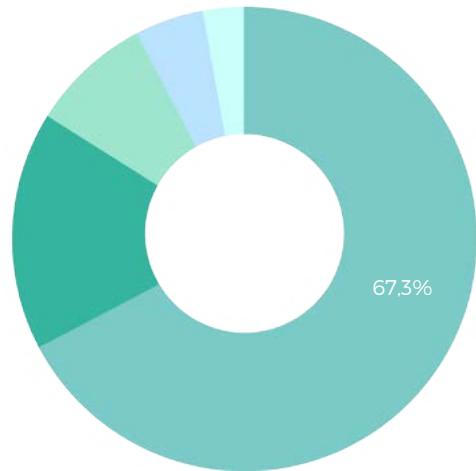
Sub-5000 owners repartition:

- 0 - 1000
- 1001 - 2000
- 2001 - 3000
- 3001 - 4000
- 4001 - 5000

"Only 10.5% of paid VR games released in 2017 have more than 5000 owners. If this trend continues into the future there is 1 in 10 chance of making it into the 5000+ group."

FINANCIAL PLAN

CONTEXT

We took different approaches in order to make that game a reality. Since we know we won't be profitable if we only go to Steam we chose to branch out and make the most out of our IP.

First, our approach in design allows us to scope our project to suit the needs of a publisher. Ideally, we would rather make an episodic game with around 8 to 10 hours of content. While there is a chance for the whole game to be funded by an ambitious business angel, we looked at other ways to finance ourselves.

Other approaches include:

● Dealing the exclusive rights for 1 episode to a VR headset manufacturer that would fund and publish the game.

● Offshoot our core concept to a B2B deal with a drone company (i.e. Parrot) to make an exclusive promotional experience of 15 to 30 mn, other companies can be approached as well such as camera manufacturers, tour operators and many more.

● B2B deals with VRcades and theme parks to licence several short experiences and negotiate royalty fees.

For the latter, we considered scaling down our experience to 20 or 30mn, up to an episodic format of 2h content per episode.
There have already been occurrences of B2B partnerships with companies such as Pasta Games with Parrot and BulkyPix with Veolia so this is a real opportunity.

Furthermore, we are pitching this game to a publisher and hope to make a profit from the contract we will sign. Episodic VR is not something we see every day. We believe that the episodic format will bring more exposure and over a longer period of time than a regular "one-shot" game. If an editor wants a very distinctive title to his catalog, Kaiju Snap can be that game.

Kaiju Snap has been designed at its core to be a long experience, paced out over multiple episodes. We really took into account the adaptation factor to VR and built our game progression around that. Yet we know financing a 10-hour game is not easy, especially for the VR market. We took that into account and we are ready to bring down the game on a smaller scale if needed.

Kaiju Snap could transform into a 2 to 3 hours single episode and still be enjoyable as a whole experience. Designing our core game experience with the average VR session duration in mind - pacing our game with 20 to 30 mn play sessions - really gives us the flexibility we need to adapt to a publisher's demand.

FINANCIAL PLAN

BUDGET

On the next page is the detailed budget for a 2 to 3h episode of Kaiju Snap. This production cycle can be either scaled up - for a full episodic game like on the following spreadsheet - or scaled down for a shorter 20mn experience.

	March	April	May	June	July	August	September	October	November
376 775 €	1	2	3	4	5	6	7	8	9
Episode 1	pre-production		production					debug	release
Monthly Total	49 745 €	36 550 €	51 350 €	51 350 €	54 780 €	54 780 €	54 780 €	23 440 €	
Man / Month									
Full time									
VR Programmer	1	1	1	1	1	1	1	1	
Gameplay Programmer	1	1	2	2	2	2	2	2	
Character Artist	1	1	1	1	1	1	1		
Level Artist	1	1	1	1	1	1	1		
Game designer	1	1	1	1					
LD / Integrator		1	1	1	2	2	2		
UX / QA	1	1	1	1	1	1	1	1	
Producer	1	1	1	1	1	1	1	1	
Freelance									
VFX & texture artist			1	1	1	1	1		
3D Animator			1	1	1	1	1		
Level Artist			1	1	1	1	1		
Sound Designer					1	1	1		

		2018										2019			
888 104 €		Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Episode #1		pre-production		production						debug		release			
Episode #2					pre-production		production					debug	release		
Episode #3							pre-production		production					debug	release
Monthly Total		58 645 €	36 620 €	51 490 €	60 230 €	72 470 €	96 080 €	96 080 €	96 080 €	96 080 €	86 470 €	68 100 €	46 250 €	23 510 €	
Man / Month															
Full time															
VR Programmer		1	1	1	1	1	2	2	2	2	2	2	1	1	
Gameplay Programmer		1	1	2	3	3	4	4	4	4	4	4	2	2	
Character Artist		1	1	1	1	1	2	2	2	2	1	1	0	0	
Level Artist		1	1	1	2	2	2	2	2	2	1	1	0	0	
Game designer		1	1	1	1	1	1	1	1	1	0	0	0	0	
LD / Integrator		0	1	1	1	3	3	3	3	3	3	2	2	0	
UX / QA		1	1	1	1	1	1	1	1	1	1	1	1	1	
Producer		1	1	1	1	1	1	1	1	1	1	1	1	1	
Freelance															
VFX & texture artist		0	0	1	1	1	2	2	2	2	2	1	1	0	
3D Animator		0	0	1	1	1	2	2	2	2	2	1	1	0	
Level Artist		0	0	1	1	1	2	2	2	2	2	1	1	0	
Sound Designer		0	0	0	0	1	1	1	1	1	2	1	1	0	
Full time man/month		7	8	9	11	13	16	16	16	16	13	12	7	5	
Freelance man/month		0	0	3	3	4	7	7	7	7	8	4	4	0	
Monthly / full time		30 100 €	34 400 €	38 700 €	47 300 €	55 900 €	68 800 €	68 800 €	68 800 €	68 800 €	55 900 €	51 600 €	30 100 €	21 500 €	
Monthly / freelance		0 €	0 €	10 500 €	10 500 €	14 000 €	24 500 €	24 500 €	24 500 €	24 500 €	28 000 €	14 000 €	14 000 €	0 €	
Monthly sub-total		30 100 €	34 400 €	49 200 €	57 800 €	69 900 €	93 300 €	93 300 €	93 300 €	93 300 €	83 900 €	65 600 €	44 100 €	21 500 €	
Office															
Rent		800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	800 €	

FINANCIAL PLAN

PRODUCTION CYCLES

Here is the detailed budget for a 2 to 3h episode of Kaiju Snap. This production cycle can be either scaled up - for a full episodic game - or scaled down for a shorter 20mn experience.

1 episode man/month overview

● Freelance man/month

● Full-time man/month

3 episodes man/month overview with overlapping episodes

● Freelance man/month

● Full-time man/month

We presented different scenarios based on how production can be handled if the game is released in an episodic format and how it is priced. We found our price point to be a compromise between consumer expectations and revenues.

Net income is what's left after distributor share, VAT fees and Epic royalty on gross revenue. We estimate that number to be roughly half the price of the game.

Sales PC (mostly Steam)	#1 episode at 10€ then 15€ for the other 2	3 episodes bundle	Only First Episode	Per new episode
Game length	9 - 10h over 3 episodes	Idem	2-3h	2-3h
Production cost	888 104 €	888 104 €	376 775 €	255 665 €
Price	25,00€	20,00€	10,00 €	10,00 €
Net income	12,50€	10,00€	5,00 €	5,00 €
Break-even point (units to sell)	71 049	88 811	75 356	51 134

Production costs presented here do not cover localization and marketing budgets. For an indie, there is very little chance to break even. But that might not necessarily be the case for a publisher. So we need to pitch the game either way. As stated before, we have no clear figure concerning PS VR game sales. But it still is the biggest market for HQ VR headsets. If we target big VR publishers (with Sony being at the top of that list) and convince them to finance and localize Kaiju Snap we may be able to sign an exclusive deal for console or a dedicated PC device (Rift or Vive).

There is no clear definitive answer to the question "How will you make money with VR games." Yes, the market is opening, but sales figures show it is still both very small and tough to survive in. Especially for an indie studio like ours, as our only solution is to go with a publisher. But we believe we have good arguments that could play in our favor.

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