



GAME DESIGN DOCUMENT

Francesco Brancato

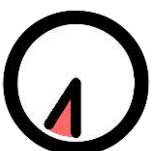
Andrea Buzzi

Simone Ciaccio

Gabriele Ferilli

Francesco Luzzi

Simone Marzeddu



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1. Summary

UFO Cowtcher is a single player 2D mobile game whose purpose is to control a UFO and collect as many cows as possible during each game. The gameplay loop is designed to be rewarding and satisfying, but also enjoyable for those players who just want to chill with the game, thanks to its simple inputs and mechanics.

The player, once collected those cows, can consult a special catalogue of their captures, called **Cowdex**. This is a feature that encourages player's engagement in-game through the collection of the unique cows present in UFO Cowtcher.

In-game 2D art is completely handmade by SixToSeven's Artist Simone Marzeddu. While 3D art and soundtracks are copyright free assets (sources are linked in the Appendices).

In this document are described all mechanics and design choices behind the game. It is also present the **Risk Analysis** written by programmers which contains all issues and timing about implementation and development of most of the in-game features.



2. Gameplay

2.1. Introduction

The game is based on the concept of the UFO Catcher and therefore the gameplay has been designed to give the player the same feeling. In the game the player will take the role of an alien, who on board his spaceship, must capture all the cows on the planet to complete a kind of bestiary called **Cowdex**. The player will discover that the mission is not as easy as they could think, in fact each cow will have a peculiar behaviour and some of them could also be dangerous for the player.

2.2. Success

In the game there will not be only one kind of success, the most obvious, but also the one that determines the end of the game, will be having completed the Cowdex. This will be the player's long-term goal, before reaching this however there will be other small steps that can be considered successes.

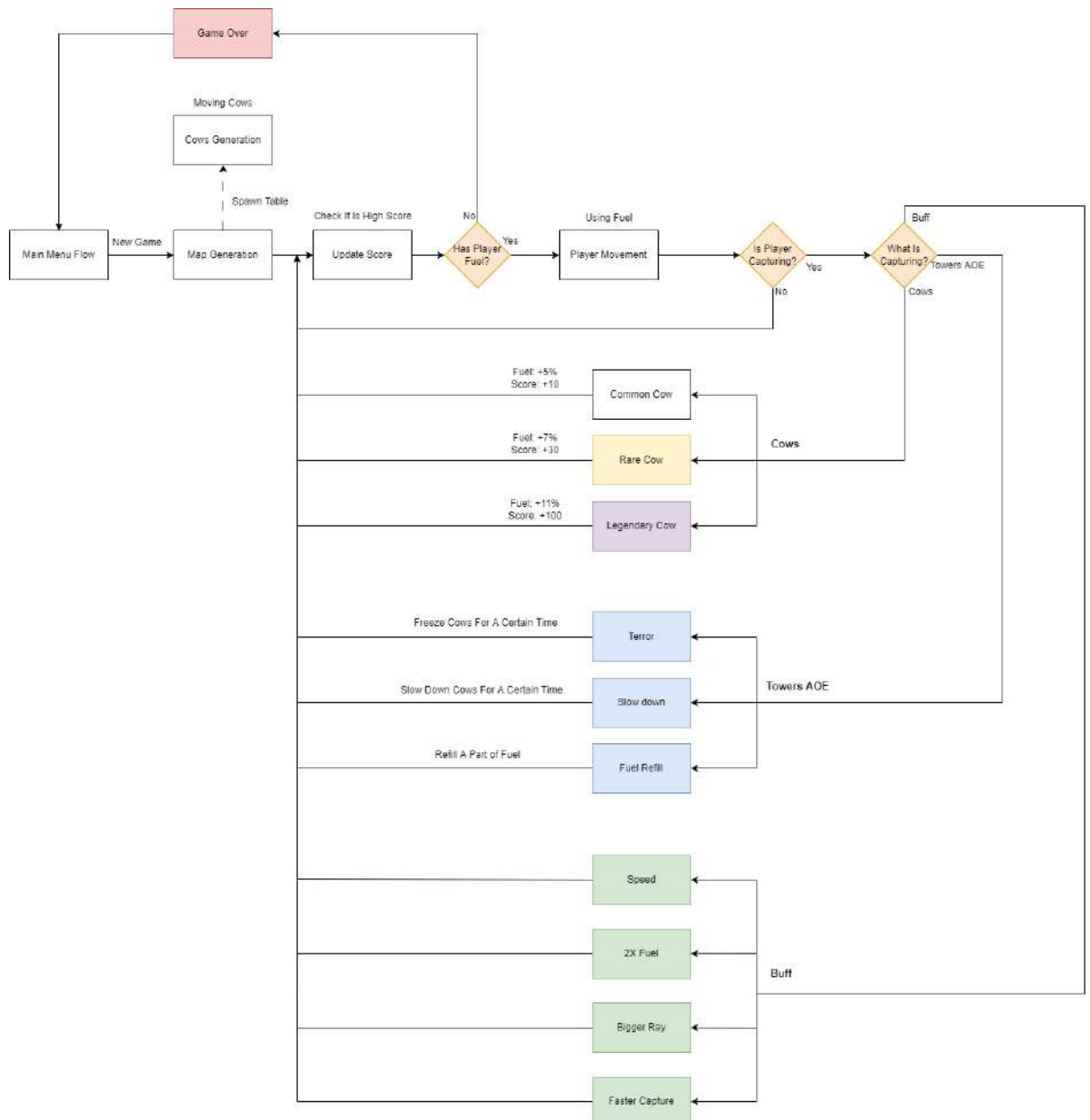
- **Capture success:**
The constant feeling of success throughout the gameplay, found when the player captures new cows.
- **High Score success:**
To be able to finish a game with a higher high-score than the previous one, the player will feel that he has accomplished something and improved himself.
- **Moossion success:**
When the player will complete one of the "Moossions" available in the game he will be rewarded with additional points in the game score.
- **Gain Experience = More Rewards:**
When the player ends a game, the score will be added to a general counter that is the Player's Level for each paddock. The Level has different milestones and reaching one of them will unlock new cows for that paddock. Reaching the Level 5 for each paddock will unlock a new paddock too.

2.3. Failure

In UFO Cowtcher each game will end with a failure. In the top part of the screen there will be a fuel bar that will indicate how long the player will be able to keep playing, once that the fuel bar reaches zero the game will end. Another kind of failure can occur when the player is not able to catch a legendary cow, in fact this one will be able to escape from the paddock, after the UFO chase it, leaving the player with a sense of unsuccess

2.4. Core Loop

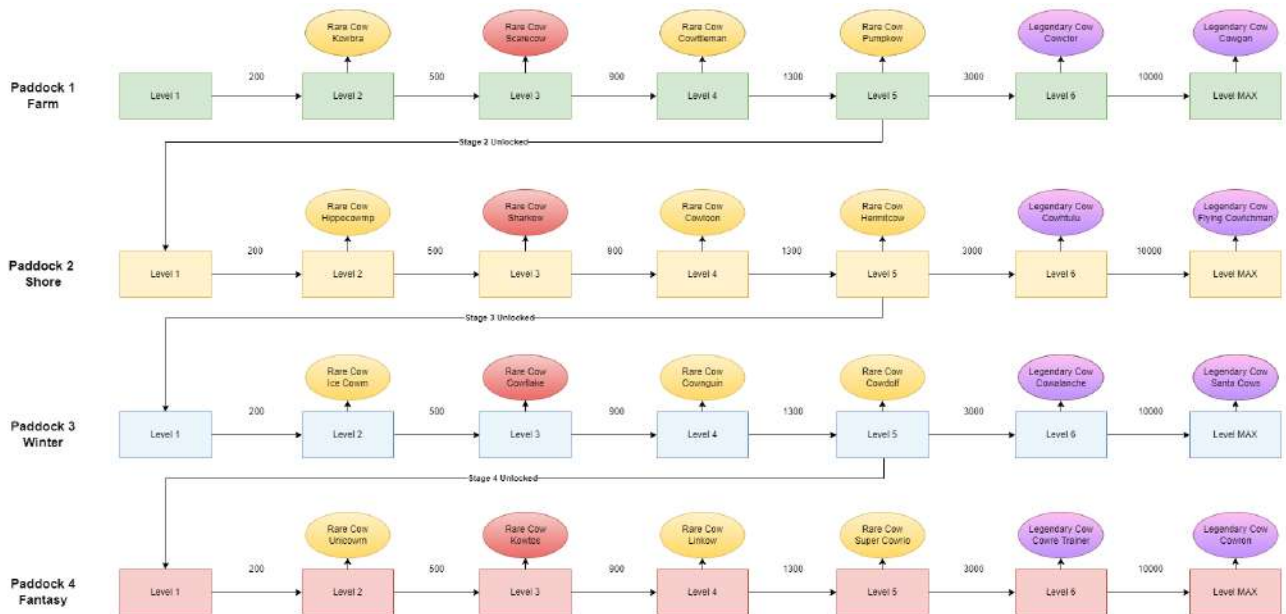
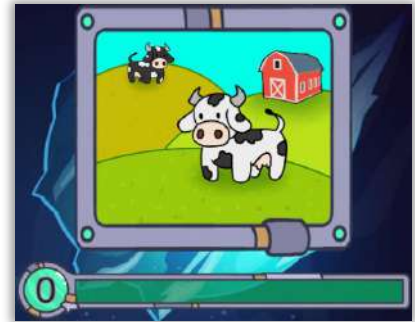
The gameplay loop is designed to stay as much as possible in the game until the fuel is over.



2.5. Game Progression

Every paddock in the game shows an **experience bar** that provides the actual player's level.

Levels are important to rule game progression: experience increases as the player plays in each paddock and it's based on the player's score, calculated through cow captures and Moossions completed. Once reached a new level a new cow for the paddock will be unlocked and once reached in each paddock the 5th level, the next paddock will be available.



2.6. Power Ups

UFO Cowtcher features two kinds of power ups, both usable by the player by gathering them into the game field.

- **Perks**
- **AOE towers**

These power ups spawn into the game field through the "Asteroid System": Every second there is a certain probability that one of them could "fall" through an asteroid into the paddock and they will stay there over a period of time, 10 seconds for the buffs and 30 for the turrets, until they disappear if the player doesn't use them in time. The probability starts from 5% and grows for each second of 1%. Once spawned, the probability drops again to 5%.

Perks

- *Speed*

Actual speed will be multiplied by 25% for 10 seconds



In-Game collectable look



How the UFO changes when the buff is taken

- *2x Fuel*

Capturing a cow when the buff is active, allows to gain the double fuel



In-Game collectable look



How the UFO changes when the buff is taken

- *Bigger Ray*

Ray size will be increased by 30% for ten seconds



In-Game collectable look



How the UFO changes when the buff is taken

- *Faster Capture*

Time of capture will be cut by 30% for ten seconds



In-Game collectable look



How the UFO changes when the buff is taken

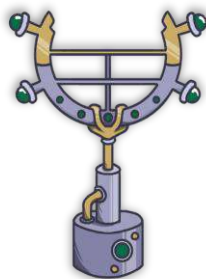
These power ups can be combined and the aspect of the UFO, if each one is collected, will be like this



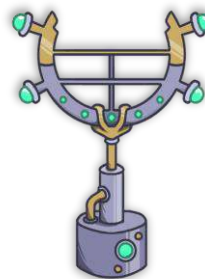
AOE Towers

Towers will work in the following way:

once the player will stand on them for a period equal to the one of the captures, the turret will activate changing the sprite (left to right) with the specified buff on it



Off



On

Towers

- *Fuel Refill*

Standing on the tower, fuel will be refilled of 5 units for 3 seconds, with a total of 15 units out of the total of 45 units



Off



On

- *Slow Down*
Standing for a while on the tower, in a certain area cows will slow down by 30% their original speed for 10 seconds



Off



On

- *Terror*
Standing for a while on the tower, in a certain area cows will freeze for 5 seconds



Off



On

2.7. Cowdex

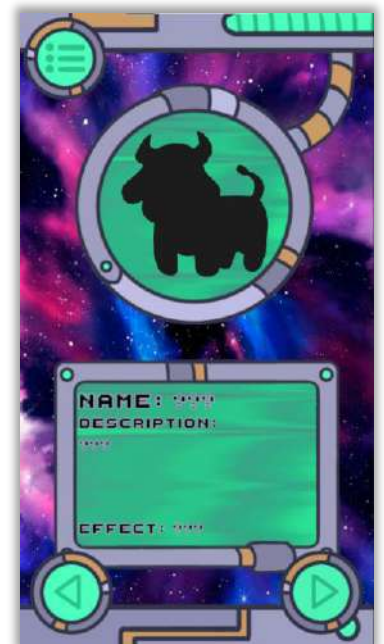
The **Cowdex** is an electronic device designed to catalogue and provide information about collected cows by the player during their gameplays.

The Cowdex could be consulted in-game and from the game menu.

The information provided by the Cowdex are:

- Picture
- Name
- Description
- Effect (for some cows)

Until a Cow hasn't been captured, in the Cowdex will be a blank page with no information.



2.8. Moossions (Missions)

In the game there will be specific missions called “Moossions”. These quests will provide to vary the gameplay.

In each game the player will receive a random set of three “Moossions”, pulled out from a list of “Moossions”. When the player will complete one of these will multiply his final score times a number that will be:

- 1 “Moossion” completed -> Total Score x1.25
- 2 “Moossions” completed -> Total Score x1.5
- 3 “Moossions” completed -> Total Score x2.0

Each of these “Moossions” could be accomplished with in-game actions.

Here the list of the type of “Moossions”:

- Generic Cows captures



- Specific Cow captures (Specific sprite of the cow)



- Capture using specific buff



- Capture cows under the effect of a specific tower



2.9. Garage - Shop (Cut Content)

In “UFO Cowtcher” the player could be able to spend their money into aesthetic of the spaceship.

These modifications had no impact on gameplay performance, but they were actually just an accessory for the player to feel the game suitable with their preferences.

Skins for the spaceship were divided in two categories:

- Colours
- Special skins (stages related)

The Garage due to development time issues has been cut from the game.

3. Characters

3.1. Introduction

In UFO Cowtcher there will be just two categories of characters:

- The UFO (Player)
- Cows (game's targets)

The UFO is the main character and it's controlled by the player that will travel between planets to capture cows that will collect into its personal Cowdex, an AI that gives info to the player about the captured Cows.

3.2. Cows

General Concepts

Document Conventions:

- **Speed (Slow - Average - Fast - Extra):** A general overview of a cow's speed compared with others and UFO's speed. Average speed means UFO speed
- **Meters (M):** Unit of space represented by a base cow size
- **Seconds (S):** Unit of time
- **Quiet Movement Cooldown (QMC):** After a movement in Quiet state, cows have a specific cooldown of seconds while they don't move

After a cow capture is performed by the UFO, the in-game score will be updated according to the following values:

- **Common Cows:** +10 to the actual score
- **Rare Cows:** +30 to the actual score
- **Legendary Cows:** +100 to the actual score

Variations to the main Cow AI Behaviour:

Legendary Cows:

- Alert State will last longer compared to other cows' rarity
- After the Alert State is over, the cow will flee out of the paddock

Cow Template:

Name: Name displayed in game

ID: unique cow identification code

Quiet State: Behaviour description for this specific state

QMC: Cooldown time in S

Quiet Speed: Cow's speed during Quiet State

Alert State: Behaviour description for this specific state

Alert Range: Cow's alert range radius in M

Alert Speed: Cow's speed during Alert State

Rarity: Rarity level

Paddock: Stage where the cow spawns

Hiding Spot: Hiding spot considered by the cow



Stage 1: Farm

Name: Black Cow

ID: C000

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO

Alert Range: 2 M

Alert Speed: Slow

Buff: None

Rarity: Common

Paddock: Farm

Hiding Spot: Bush

Cowdex Description: “The first of the two cows you have met on this planet, someone says that it can produce chocolate milk”



Name: White Cow

ID: C001

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO.

Alert Range: 3 M

Alert Speed: Slow

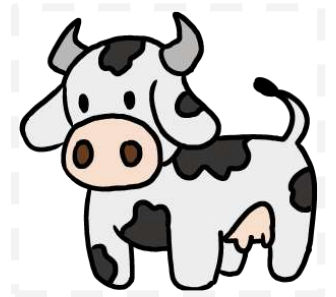
Buff: None.

Rarity: Common

Paddock: Farm

Hiding Spot: Bush

Cowdex Description: “This is the second cow you’ve met, it looks like the creator of this world just inverted the colours”



Name: Kowbra

ID: R000

Quiet State: The cow will follow a swaying and sinuous trajectory for 3 S, moving like a snake

Quiet Cooldown: 1 S

Quiet Speed: Average

Alert State: The cow will follow a swaying and sinuous trajectory, like a snake

Alert Range: 3 M

Alert Speed: Fast

Rarity: Rare

Paddock: Farm

Hiding Spot: Rock

Cowdex Description: "It is said that this cow it's one of the fastest on the planet, the only problem is that it cannot go straight"



Name: Pumpcow

ID: R001

Quiet State: The cow will move in a random direction, moving in a little bouncy step

QMC: 0.5 S

Quiet Speed: Slow

Alert State: The cow moves with little bouncy steps

Alert Range: 5 M

Alert Speed: Average

Rarity: Rare

Paddock: Farm

Hiding Spot: Barn

Cowdex Description: "No one has ever seen a baby Pumpcow grow, who knows if it can be used for Halloween"



Name: Cowttleman

ID: R002

Quiet State: The cow will approach different cows, changing the objective cow whenever it reaches one

QMC: 1 S

Quiet Speed: Average

Alert State: All the cows in a 5 M range around the cow will gain a speed boost

Alert Range: 5 M

Alert Speed: Slow

Rarity: Rare

Paddock: Farm

Hiding Spot: Barn

Cowdex Description: "Even on this planet you have to work but it's strange that a cow to look after other cows"



Name: Scarecow

ID: R003

Quiet State: The cow doesn't move

QMC: 1 S

Quiet Speed: None

Alert State: The cow will follow the UFO in order to be captured

Alert Range: 3 M

Alert Speed: Average

Rarity: Rare

Paddock: Farm

Hiding Spot: None

Cowdex Description: I don't know if for you it's the same but this thing it's very scary, if I were you I wouldn't catch it

Malus Effect: "Capturing this cow removes the 10% of the actual UFO fuel"



Name: Cowctor

ID: L000

Quiet State: Moves with incremental speed in the same direction, chosen randomly, until it is blocked by an obstacle.

QMC: None

Quiet Speed: Start **Slow** - Max: **Fast**

Alert State: The cow runs in a random direction. On each step performed in this direction, the probability to change direction increases (EXAMPLE: At step 0 the probability to choose the same directions it's 100% - $i \cdot 10\%$, so it's 100%, and the other directions share the remaining. At step 6 it will be 40% the same and 20% the others)

Alert Range: 2 M

Alert Speed: Start **Slow** - Max: **Fast**

Rarity: Legendary

Paddock: Farm

Hiding Spot: None

Cowdex Description: "This one looks really cool. Be careful, when it goes in one direction it starts to get fast"



Name: Cowgon

ID: L001

Quiet State: Random movement on every axis but moving at a certain distance from the ground (flying in this way the Cowgon will surpass every ground cow).

QMC: None

Quiet Speed: **Fast**

Alert State: The cow runs in the opposite direction compared to the UFO, but every 10S the Cowgon will roar, freezing the UFO position for 1S

Alert Range: 3 M

Alert Speed: **Average**

Rarity: Legendary

Paddock: Farm

Hiding Spot: None

Cowdex Description: "I've never seen something like this, on this planet, before. Who knows what brought it here, maybe something magic?"



Stage 2: Shore

Name: Cowcktail

ID: C002

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO

Alert Range: 2 M

Alert Speed: Slow

Rarity: Common

Paddock: Shore

Hiding Spot: Beach Cabin

Cowdex Description: "Analysing this cow I can inform you of two things: this planet has a lot of water and this cow cannot swim"



Name: Cowst

ID: C003

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO

Alert Range: 3 M

Alert Speed: Slow.

Rarity: Common

Paddock: Shore

Hiding Spot: Sand Castle

Cowdex Description: "This cow reminds me of the coast of your planet home, it looks like someone tried to dig her"



Name: Hippocowmp

ID: R004

Quiet State: The cow will follow a swaying and sinuous trajectory for 3 S, moving like a fish

Quiet Cooldown: 1 S

Quiet Speed: Average

Alert State: The cow will follow a swaying and sinuous trajectory, like a fish

Alert Range: 3 M

Alert Speed: Fast

Rarity: Rare

Paddock: Shore

Hiding Spot: Sand Castle

Cowdex Description: "After some captures, you discovered this new cow. It's so mesmerising to watch"



Name: Hermitcow

ID: R005

Quiet State: The cow will move in a random direction, moving in a little bouncy step

QMC: 0.5 S

Quiet Speed: Slow

Alert State: The cow moves with little bouncy steps

Alert Range: 5 M

Alert Speed: Average

Rarity: Rare

Paddock: Shore

Hiding Spot: Treasure Chest

Cowdex Description: "This cow acts in a strange way, it's always inside a big shell and prefers to avoid quasò... sorry croissant"



Name: Cowloon

ID: R006

Quiet State: The cow moves with long jumps (not too high, but long), constantly rolling on itself

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow moves with long and fast jumps (not too high, but long), constantly rolling on itself

Alert Range: 5 M

Alert Speed: Fast

Rarity: Rare

Paddock: Shore

Hiding Spot: Beach Cabin

Cowdex Description: "It prefers to roll around and jump instead of walking, I hope it will never deflate."



Name: Sharkow

ID: R007

Quiet State: The cow will move very slowly around the same area.

QMC: 1 S

Quiet Speed: None

Alert State: The cow will follow the UFO in order to be captured, while performing alternations of dashes and pauses.

Alert Range: 3 M

Alert Speed: Average

Rarity: Rare

Paddock: Shore

Hiding Spot: None

Cowdex Description: "This cow looks so angry it reminds me of a... SHAAAAARK!"

Malus Effect: If captured the UFO loses all its power-ups. If no power-ups are active on the UFO, players lose 20% of their score



Name: Cowhtulhu

ID: L002

Quiet State: Random movement on every axis but moving at a certain distance from the ground (flying in this way the Cowhtulhu will surpass every ground cow).

QMC: None

Quiet Speed: Average

Alert State: A dark atmosphere covers the paddock, as the UFO and all the cow which are not Cowhtulhu or Flying Cowtchman tremble with terror for a 1S every 3S for 3 times

Alert Range: 2 M

Alert Speed: Fast

Rarity: Legendary

Paddock: Shore

Hiding Spot: None

Cowdex Description: "I found something like this in the database, a certain Lovecowft talks about it and says "The Thing cannot be described", is not reassuring."



Name: Flying Cowtchman

ID: L003

Quiet State: Random movement on every axis but moving (flying) at a certain distance from the ground

QMC: None

Quiet Speed: Fast

Alert State: A white/green mystery fog covers the entire paddock, every cow which is not a Flying Cowtchman disappears. After 5S the cows start appearing again.

Alert Range: 3 M

Alert Speed: Average

Rarity: Legendary

Paddock: Shore

Hiding Spot: None

Cowdex Description: "You start to feel shivers on your back every time you see it, maybe you will be haunted?"



Stage 3: Winter

Name: Skow

ID: C004

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO.

Alert Range: 2 M

Alert Speed: Slow

Rarity: Common

Paddock: Winter

Hiding Spot: Cart

Cowdex Description: "Despite its appearance, this cow is not as good on skis as it looks. Maybe it should try snowboarding"



Name: Cowld

ID: C005

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO

Alert Range: 3 M

Alert Speed: Slow

Rarity: Common

Paddock: Winter

Hiding Spot: Igloo

Cowdex Description: "This cow looks so fluffy and so warm, don't you feel like hugging it?"



Name: Ice Cowm

ID: R008

Quiet State: The cow will move in a random direction, moving in a little bouncy step

Quiet Cooldown: 1 S

Quiet Speed: Average

Alert State: The cow will move in a random direction, moving in a little bouncy step

Alert Range: 3 M

Alert Speed: Fast

Rarity: Rare

Paddock:

Hiding Spot: Cart

Cowdex Description: “Despite its aspect it’s not tasty as it looks. It like to sleep next to snow cones to avoid melting”



Name: Cowdolf

ID: R009

Quiet State: The cow will move in a random direction, moving in a little bouncy step

QMC: 0.5 S

Quiet Speed: Slow

Alert State: The cow moves with little bouncy steps

Alert Range: 5 M

Alert Speed: Average

Rarity: Rare

Paddock:

Hiding Spot: Christmas Presents

Cowdex Description: “When it’s starting to snow, thanks to his fur, it doesn’t feel cold. Sometimes it can be seen towing sleighs”



Name: Cownguin

ID: R010

Quiet State: The cow slides on the ground in a random direction for 2S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow slides on the ground, changing direction when it hits any object

Alert Range: 5 M

Alert Speed: Fast

Rarity: Rare

Paddock:

Hiding Spot: Igloo

Cowdex Description: "This one it's different from the others, it looks like it evolved and instead of walking it prefers to slide. Could be a spy undercover"



Name: Cowflake

ID: R0011

Quiet State: The cow doesn't move

QMC: 1 S

Quiet Speed: None

Alert State: The cow will follow the UFO in order to be captured

Alert Range: 3 M

Alert Speed: Average

Rarity: Rare

Paddock: Winter

Hiding Spot: None

Cowdex Description: "It's said that this cow doesn't move so much because of its cold heart. Maybe it's because of this that it like to follow you"

Malus Effect: Capturing this cow Freezes the UFO for 3 S



Name: Santa Cows

ID: L004

Quiet State: Random movement on every axis but moving (flying) at a certain distance from the ground

QMC: None

Quiet Speed: Average

Alert State: once captured the player has the 33% of finding a buff in the place where capture happened

Around the UFO, outside of its ray, three Christmas presents spawn on the ground. If the player moves on one of these presents, they will get a random buff (20%) or a reduction of the 10% of the actual UFO fuel

Alert Range: 2 M

Alert Speed: Fast

Rarity: Legendary

Paddock: Winter

Hiding Spot: None

Cowdex Description: "This cow always brings something with it to give to others, and often it's seen next to a Cowdolf. Maybe you could be lucky and receive a gift"



Name: Cowalanche

ID: L005

Quiet State: Random movement on every axis

QMC: None

Quiet Speed: Slow

Alert State: A white snowstorm covers the entire paddock, every cow which is a Cowalanche, Cowflake or Ice Cowm receive a speed increment of 50%. During the snowstorm the UFO speed is reduced by 10%.

Alert Range: 3 M

Alert Speed: Average

Rarity: Legendary

Paddock: Winter

Hiding Spot: None

Cowdex Description: "As this cow moves it gathers all the snow found in its track. Whenever it wants, it can release the snow causing an avalanche"



Stage 4: Fantasy

Name: Cowalier

ID: C006

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO.

Alert Range: 2 M

Alert Speed: Slow

Rarity: Common

Paddock: Fantasy

Hiding Spot: Well

Cowdex Description: "A really good-looking cow, is very strange when you think about how he managed to wear armour"



Name: Abracowdabra

ID: C007

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Slow

Alert State: The cow runs in the opposite direction compared to the UFO

Alert Range: 3 M

Alert Speed: Slow

Rarity: Common

Paddock: Fantasy

Hiding Spot: Book

Cowdex Description: "This cow probably survived an unpleasant event when it was little and this bring it to become a magician, but now you captured"



Name: Linkow

ID: R012

Quiet State: The cow will follow a swaying and sinuous trajectory for 3 S, moving like a fish

Quiet Cooldown: 1 S

Quiet Speed: Average

Alert State: The cow will follow a swaying and sinuous trajectory

Alert Range: 3 M

Alert Speed: Fast

Rarity: Rare

Paddock: Fantasy

Hiding Spot: Arcade Cabinet

Cowdex Description: "This cow has such a sense of adventure regardless of the dangers of this world, maybe here it's not so dangerous to go alone"



Name: Super Cowrio

ID: R013

Quiet State: The cow will move in a random direction, moving with bouncy steps

QMC: 0.5 S

Quiet Speed: Slow

Alert State: The cow moves with little bouncy steps

Alert Range: 5 M

Alert Speed: Average

Rarity: Rare

Paddock: Fantasy

Hiding Spot: Arcade Cabinet

Cowdex Description: "It looks so tormented; it looks like it's always looking for a princess to save"



Name: Unicowrn

ID: R014

Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Start **Slow** - Max: **Fast**

Alert State: The cow runs in a random direction. On each step performed in this direction, the probability to change direction increases (EXAMPLE: At step 0 the probability to choose the same directions it's 100% - $i \cdot 10\%$, so it's 100%, and the other directions share the remaining. At step 6 it will be 40% the same and 20% the others)

Alert Range: 2 M

Alert Speed: Start **Slow** - Max: **Average**

Rarity: Rare

Paddock: Fantasy

Hiding Spot: Book

Cowdex Description: "Because of all the magic on this planet, this cow obtained powers that allowed it to transport a dangerous cow to a different planet"



Name: Kowtos

ID: R0015

Quiet State: The cow moves constantly in random directions, without stopping between movements

QMC: None

Quiet Speed: **Average**

Alert State: The cow will follow the UFO in order to be captured, while performing alternations of dashes and pauses.

Alert Range: 3 M

Alert Speed: **Fast**

Rarity: Rare

Paddock: Fantasy

Hiding Spot: None

Cowdex Description: "Only by looking into her eyes can you understand what she is feeling, all that anger might be directed at you. Maybe it's better to run away"

Malus Effect: Capturing this cow increments the fuel consumption of the UFO for 10 S



Name: Cowre Trainer

ID: L006

Quiet State: The cow moves constantly in random directions, without stopping between movements

QMC: None

Quiet Speed: Slow

Alert State: The cow triggers the power of any of the existing (unlocked) legendary cows

Alert Range: 2 M

Alert Speed: Fast

Rarity: Legendary

Paddock: Fantasy

Hiding Spot: None

Cowdex Description: "This cow has great taste in video games and always try to help others, it seems so well prepared that it could do it for a living"



Name: Cowron

ID: L007

Quiet State: Quiet State: Random movement on X or Y axis, not diagonal. Every movement lasts for 2 S

QMC: 1 S

Quiet Speed: Fast

Alert State: UFO's speed is reduced 20%. All the cows on the field enter in alert state

Alert Range: 3 M

Alert Speed: Slow

Rarity: Legendary

Paddock: Fantasy

Hiding Spot: None

Cowdex Description: "A terrifying being who managed to find the only ring. It is said that he used to be good but was corrupted"



4. Level Design

4.1. Introduction

UFO Cowtcher Gameplay is designed to be played in a rectangular game space surrounded by fences, called **Paddock**.

The game features different stages that share similar structure and characteristics. The player will advance in new stages only if they achieve certain in-game missions and conditions.

4.2. Map Level Design

In-game maps are intended to be the perfect space where the player can enjoy UFO Cowtcher's gameplay. Each Map is confined with fences that draw the perimeter of the area where the player can move in.



4.3. Shelters

Shelters are the place where cows can hide themselves after a certain period of time that they have been chased by the UFO. There are different Shelters, each one designed to be the only shelter for each cow's species.

Shelters can contain a limited number of cows, and this limit is always shown to the player whenever they pass upon each of them.



Once the Shelter hosts cows, those ones will be respawned into the map considering two factors:

- It's been a fixed period of time
- The UFO is far from the shelter

The waiting time is 5 seconds. The UFO has to be 5 metres far.

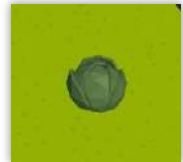
Those characteristics are shared through all shelters.

Follow a list of every Shelter for each stage:

Bush – Paddock 1

Target Cows: Black Cow (Common), White Cow (Common)

Max Cows: 2



Rock – Paddock 1

Target Cows: Kowbra (Rare)

Max Cows: 1



Barn – Paddock 1

Target Cows: Pumpkow (Rare), Cowttleman (Rare)

Max Cows: 1



Beach Cabin - Paddock 2

Target Cows: Cowcktail (Common), Cowloon (Rare)

Max Cows: 2



Sand Castle - Paddock 2

Target Cows: Hippocowmp (Rare), Cowst (Common)

Max Cows: 2



Treasure Chest - Paddock 2

Target Cows: Hermitcow (Rare)

Max Cows: 1



Igloo - Paddock 3

Target Cows: Cowld (Common), Cownguin (Rare)

Max Cows: 2



Christmas Present - Paddock 3

Target Cows: Cowdolf (Rare)

Max Cows: 1



Cart - Paddock 3

Target Cows: Skow (Common), Ice Cowm (Rare)

Max Cows: 2



Well - Paddock 4

Target Cows: Cowvalier (Common)

Max Cows: 2



Arcade Cabinet - Paddock 4

Target Cows: Linkow (Rare), Super Cowrio (Rare)

Max Cows: 1



Magic Book - Paddock 4

Target Cows: Unicowrn (Rare), Abracowdabra (Common)

Max Cows: 2



4.4. Other Elements

In the map there will also be two other elements that will make it less flat and add interaction with the player. The first one is the tree that will add some nature to the scene and there will be birds on top of them that will fly towards the rarest cow present in the Paddock.

The other type of it's the fence, when connected they create the real boundaries of the game within which the player will be able to move and capture cows.

Follow a list of every Tree and Fence for each stage:

Stage 1:

Fence and Tree



Stage 2:
Fence and Tree



Stage 3:
Fence and Tree



Stage 4:
Fence and Tree



5. Art and Aesthetics

5.1. Introduction

The art style of **UFO Cowtcher** stems from the search for a fusion of low-poly three-dimensional models and two-dimensional art, aiming for a soft, cartoonish and colourful aesthetic.

5.2. Two-Dimensional Assets

The realisation of the two-dimensional assets for **UFO Cowtcher** is the responsibility of game designer Simone Marzeddu, who took on the role of game artist in this specific context. The two-dimensional assets designed for the game constitute the entirety of the cows and user interface elements in the game.

UFO

UFO's aesthetics are designed to evoke technological features (enhanced by metallic tones and blue and green LEDs) while keeping the image simple and clean. The UFO is in fact the main element of **UFO Cowtcher** and being constantly visible in the centre of the screen should distract as little as possible the player, who will instead be more attentive to the cows and other surrounding elements.

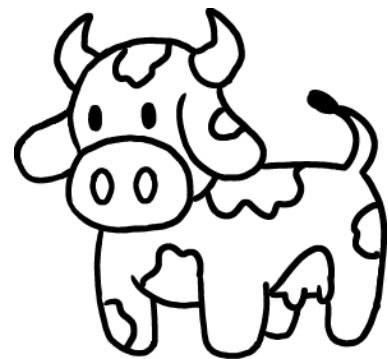
Taking advantage of the UFO's highly exposed position, this aesthetic element also becomes an integral part of the UI, as its appearance is reflected in changes to active buffs/maluses and amount of available fuel.

Cows

All cows in the game possess unique and evocative aspects of the type of cow represented and its characteristics. Despite these differences, the cows can all be traced back to a single basic template on which variants are then built through the use of varied colours, accessories and details.

This design trick is used to make the cows recognisable in their differences, while making them uniformly classifiable as cows from the player's perspective.

The aesthetic differences of the cows, as well as the complexity and distance of their design from that of the original template cow, are reflected in the rarity and power of the cow itself, which must be intuited from these aspects in order to intrigue the player and his curiosity, as well as to make the cows of legendary rarity encountered by the player stand out.



The aesthetic themes of the various cows are in harmony with the specific level and setting in which they can be spotted. Pumpkin cows (Pumpcows), breeders (Cowttlemans) and scarecrows (Scarecows) will typically be found in the farm setting.

Birds

The Birds were born as a necessity to increase the interaction between player and environment. Using a simple animation (4 frame based) they keep the style of the cows and every 2D Asset

5.3. Three-Dimensional Assets

In the game there are many different 3D Assets with different purposes. The style chosen for these assets was low poly/cartoonish and these were found online, credits in the paragraph *10 Appendices*.

They are:

- Shelters
- Fences
- Environmental Aesthetics

Shelters are intended to be a hideout for cows when chased by the UFO. In the paragraph *4.3 Shelters* there is the tear down of their usage in-game.

Fences represent the border of the game field. The picked-out asset has been used many times in order to create the entire structure and they are better described in the paragraph *4.4 Other Elements*.

6. UI and Controls

6.1. Introduction

The idea behind UI and Controls is minimalistic: the gameplay has to work with the use of just one hand and just one finger, while info on the screen must be the less possible to let the player feel overwhelmed by details but at the same time give to them the information, they needed to play the game in the best way possible.

Around this idea the entire game has been designed. In the next paragraphs will be explained the purpose of each element present on the screen during gameplay session, in the main menu and a breakdown of the Input System.

6.2. In-Game UI

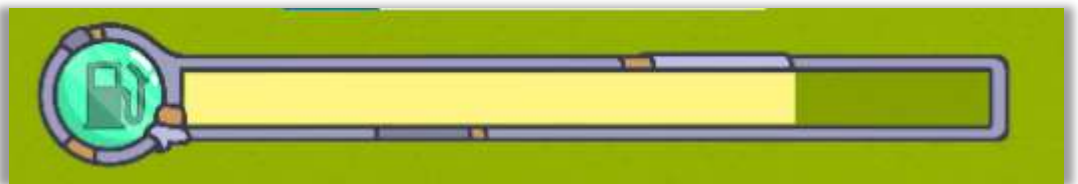
The information the player needs to see always are:

- Fuel status
- Actual Score

They are essential to let the player check the progress of the match.

Other information about perks and UFO status has been preferred to draw them directly on the UFO through special equipment drawing. Check the paragraph 2.6 *Power Ups* to know more.

The **Fuel Status** starts completely filled and gradually it decreases: once there is no fuel the game is over and the player can restart with a new game or come back to the menu.



The Fuel Status can be increased by capturing cows and using Fuel Tower in game.

The **Score** is updated in real time every time the player captures a cow: depending on the rarity of the cow, the score update changes. If during the game, the score is higher than the actual high score, it will be the new player's high score.

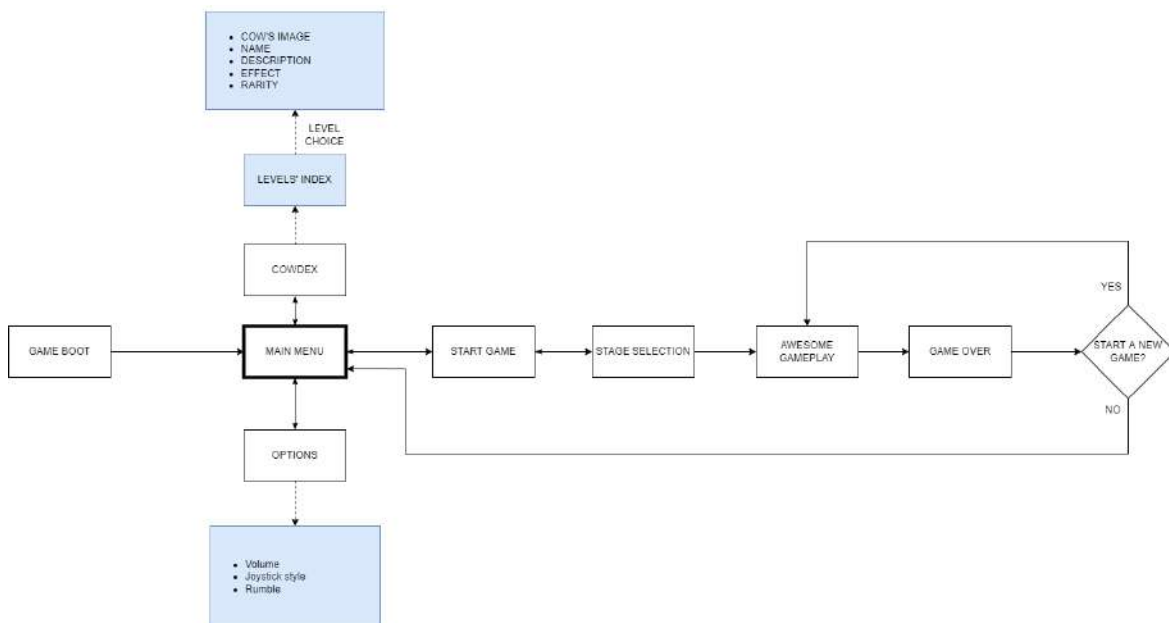


Once the fuel is used up, the game is over and the Score update stops. If there is a new high score, it will appear in the next matches.

6.3. Home Screen and Menu UI

The home screen contains all the options needed by the player:

- Start a new game
- Consult the Cowdex
- Change Options



New Game:

After selecting to start a new game, the player can choose which stage they want to play among those unlocked. Every Stage has a preview picture. On the same screen, for each stage is shown the “Level bar” of the player, that gives information about the experience gathered in that specific stage.

Cowdex:

The Cowdex has all the info about the cows captured. Check the Paragraph 2.7 *Cowdex* for more info.



Options Menu:

The player can choose if they want to turn the volume on or off and select if the virtual stick to move the UFO has to be static or dynamic in game.

7. Audio

7.1. Introduction

Every soundtrack and sound effect in the game have been selected to enhance the light and chilling experience of UFO Cowtcher.

Since there are no musicians in the team, every audio has been picked out from the following websites:

- opengameart.com

Each credit is in the paragraph *10 Appendices*.

7.2. Soundtrack

Soundtracks are divided in two main sections:

- Menu Soundtrack
- Stage Soundtrack

Menu Soundtrack:

For this section has been selected just one song for all the branches and options of the main menu:

Title: Gone Fishin
Artist: You're Perfect Studio
Purpose: -

Stage Soundtrack:

Each Stage has its own ambience music

Paddock 1

Song 1:

Title: Beary Fishy Menu Screen
Artist: You're Perfect Studio
Purpose: Gameplay soundtrack

Song 2:

Title: The Reel Winner
Artist: You're Perfect Studio
Purpose: Moossion Completed

Paddock 2

Song 1:

Title: Otherworldly Oceanside

Artist: Zane Little Music
Purpose: Gameplay soundtrack

Song 2:
Title: The Reel Winner
Artist: You're Perfect Studio
Purpose: Moossion Completed

Paddock 3

Song 1:
Title: Ice Cream Date
Artist: Djaro
Purpose: Gameplay soundtrack

Song 2:
Title: The Reel Winner
Artist: You're Perfect Studio
Purpose: Moossion Completed

Paddock 4

Song 1:
Title: Hope (Orchestral Battle Music)
Artist: Minto Dog
Purpose: Gameplay soundtrack

Song 2:
Title: The Reel Winner
Artist: You're Perfect Studio
Purpose: Moossion Completed

7.3. Sound Effects

To maintain the funny aspect of the game, the chosen sound effects of the cows, that play when they start to escape from the player, have been recorded using the team voices.

8. Tech Analysis

8.1. Introduction

The game's development starts from the beginning as a mobile game. As such, user experience, inputs and the system design has been built as a game that should have worked on smartphones.

8.2. Devices and Versions

The game builds are developed to be played for Android devices (Android 5.1 "Lollipop" and above) and for Windows 10/11 (just for testing purposes).

The game was developed with the Unity 3D Engine, the "2022.3.7f1" version. It has been preferred the LTS version, in order not to have some possible bugs in the game engine, as it is always supported and tested by the engine developers.

GitHub has been used as repository on which commit and push everything developed. Here the link to access:

https://github.com/AndreaBuzziGDev/UFO_Cowtcher.git

9. Risk Analysis

The original risk analysis has been based on the first game pitch and the general details that the designers gave to the programmers.

A first risk analysis document was drafted based on the information known up until that point, taking on each of the game's main features and giving each of them contextualization, especially taking into account team member's diverse capabilities, including but not limited to creating and finding appropriate assets for the project.

There also was an evaluation and estimation of all the expected difficulties and how those could be reduced, eliminated or worked against; the highest risk difficulty factor was the Save System, a fundamental feature, as none of the programmers had previous experience in the field, thus creating some indecisions on how to implement the solution.

				RISK RATING KEY																					
				LOW																					
				MEDIUM																					
				HIGH																					
		RISK ELEMENTS																							
CODE	DEVELOPMENT RISKS	IMPACT	PROBABILITY	RISK RATING	MITIGATION																				
C CONCEPTION																									
C1	Planning & Allocation	L	L	L	The idea is not expected to be similar to those proposed by other teams Planned to be a Mobile game.	<table border="1"> <thead> <tr> <th rowspan="2">LIKELYHOOD</th> <th colspan="3">IMPACT</th> </tr> <tr> <th>Low</th> <th>Medium</th> <th>High</th> </tr> </thead> <tbody> <tr> <td>Low</td> <td>Low</td> <td>Medium</td> <td>High</td> </tr> <tr> <td>Medium</td> <td>Medium</td> <td>High</td> <td>High</td> </tr> <tr> <td>High</td> <td>High</td> <td>High</td> <td>High</td> </tr> </tbody> </table>	LIKELYHOOD	IMPACT			Low	Medium	High	Low	Low	Medium	High	Medium	Medium	High	High	High	High	High	High
LIKELYHOOD	IMPACT																								
	Low	Medium	High																						
Low	Low	Medium	High																						
Medium	Medium	High	High																						
High	High	High	High																						
C2	Ideation	L	L	L																					
C3	Conflicting, similar ideas with other groups	L	L	L																					
C4	Determining game platform	L	L	L																					
P PROTOTYPING																									
P1	Complicated Mechanics	L	L	L	Substitute the complex mechanic with simpler one. Remove over complex things.	<table border="1"> <tr> <td>Market Risks</td> <td>Is there an existing market or new market needs to be create</td> </tr> </table>	Market Risks	Is there an existing market or new market needs to be create																	
Market Risks	Is there an existing market or new market needs to be create																								
P2	Main mechanics vs Secondary mechanics	L	L	L	Designers will determine which are more important. Secondary mechanics will be developed once the main ones are completed.	What are the competitive products present in the market?																			
P3	Are mechanics lacking depth?	L	L	L	The idea relies on simple mechanics that are very scalable, it is expected to have great diversification because of the different geographic areas and the different micro-properties	What is the purchasing power of the customer?																			
P4	Scalability of the idea and mechanics	L	L	L	Very simple, very scalable, while retaining the hypercasual mood	Any specific issues related to the locale (UI, localisation etc)																			
PP PRE-PRODUCTION																									
PP1	Input System Implementation/Version	L	L	L	Basic input, compatible with all intended platforms																				
PP2	Zero Budget - Concerns over cow skins, attachments, behaviours and properties	M	M	M	Diversified skills among team members, team capabilities allow to create assets autonomously	<table border="1"> <tr> <td>Resource Risks</td> <td>Dependency - You need specific software & hardware support</td> </tr> </table>	Resource Risks	Dependency - You need specific software & hardware support																	
Resource Risks	Dependency - You need specific software & hardware support																								
PP3	Portrait vs Landscape Mode	M	L	M	Target: portrait mode, expected to support both	Platform - Are you tied to specific things of a console that are Stakeholders - financial, budgeting risks from money people																			
D DEVELOPMENT																									
D1	Main Gameplay Loop - Macro	L	L	L																					
D2	Main Gameplay Loop - Micro (Unknown/Undesigned mechanics)	M	L	M	Additional mechanics are expected to be very simple and do not imply altering the macro mechanics	<table border="1"> <tr> <td>Financial Risks</td> <td>Stakeholders</td> </tr> </table>	Financial Risks	Stakeholders																	
Financial Risks	Stakeholders																								
D3	Concurrent development from different developers	L	L	L	The idea is very scalable and can be expanded upon easily, also very compatible with agile development techniques	Production Costs																			
D4	Concerns related to the time required to develop the features	L	L	L	The core gameplay is simple and development expected to be completed in a short time. Any additional mechanic is expected to be simple and easy to implement and test.																				
D5	Player progress save	H	M	H	<i>Risk: The programmers have no experience in developing a progress/game save system. Mitigating factor: The core trainer for the Game Programming Course LVL2 is expected to host a lesson on serialization and other save-related game mechanics/practices</i>	<table border="1"> <tr> <td>Technical Risks</td> <td>Algorithm Specific - i.e. proc gen</td> </tr> </table>	Technical Risks	Algorithm Specific - i.e. proc gen																	
Technical Risks	Algorithm Specific - i.e. proc gen																								
D6	GUI - Differences in screen size, resolution, aspect ratio	M	M	M	The team might choose to support only some Android versions	Platform - technical issues with platform.																			
D7	Artistic complexity	M	L	M	The idea is very scalable and slice-able, suitable for a vertical slice right from the start.	<table border="1"> <tr> <td>GUI/UI</td> <td>- special needs considered for this?</td> </tr> <tr> <td>Testing strategy</td> <td>- ensure product works properly.</td> </tr> <tr> <td>Performance</td> <td>- can the product handle the heat. is there any c</td> </tr> </table>	GUI/UI	- special needs considered for this?	Testing strategy	- ensure product works properly.	Performance	- can the product handle the heat. is there any c													
GUI/UI	- special needs considered for this?																								
Testing strategy	- ensure product works properly.																								
Performance	- can the product handle the heat. is there any c																								
QA TESTING / QUALITY ASSURANCE																									
QA1	Uncertainties on how to develop Unit Tests	L	L	L	The core trainer for the Game Programming Course LVL2 will host a lesson on how to develop Unit Tests in Unity Engine.																				
QA2	Designers vs Developers Ratio	L	L	L	The overall properties of the project actually make it easier to develop the idea with the given team members, their capabilities and their respective roles.	<table border="1"> <tr> <td>Maintenance Risks</td> <td>Does the product need long term support</td> </tr> </table>	Maintenance Risks	Does the product need long term support																	
Maintenance Risks	Does the product need long term support																								
QA3	Testing progression/balance	L	L	L	The scalability and slice-ability of the idea makes it possible to develop each area and the different properties of the cows/items in a non-conflicting way. <i>Each area is not expected to encounter development issues that end up affecting the other ones (self-containment)</i>	What risks arise from support method																			
QA4	Producing a build of the game for mobile devices	L	L	L	The idea is not expected to encounter issues related development and testing that imply the necessity of producing a build (.apk) early on/during development for testing outside of the daily time-window the team can dedicate to development.																				
QA5	Is the gameplay actually fine and engaging in practice?	M	L	M	The idea is very simple and from the pitch the game is aiming to be almost entirely focused on collecting everything. However, the idea is also very scalable and customizable, so it is not expected to be too simple for its own good.	Other long term considerations could also be taken into account, things like																			
M MARKETING																									
M1	Existing market/competition analysis	L	L	L	No direct-competition found, similar existing theme have been found, but the objective of the game is different when compared to this project.																				
MR MAINTENANCE RISKS																									
MR1	Tracking External Assets	M	M	M	A person will be elected to be the "External asset tracking manager".																				
MR2	Cyclic code polishing	L	M	M	On top of that, each person will be required to track in a document each external asset they introduce in the project, tracking the link (and if applicable: license) to the source.																				

The first one original Risk Analysis turned out to be consistent and reliable for the most part, but a few original mechanics introduced in the later phases of the game made it fluctuate a bit.

In particular:

- Game Progression, through level/experience
- Cows Spawning, through pre-computed probability
- Buff System, through catching random-spawned items on the map (asteroids)
- Hint System, through non-invasive aesthetic elements
- In-game Missions, useful to give depth to the experience

In order to mitigate risks, features have been changed to achieve similar results and make them compatible with a much more steadfast development approach.

- Rituals have been removed, preferring a more intuitive unlocking procedure for cows
- Game Economy and Customization has been cut for the development, because of lack of time
- QTEs have been cut, preferring an easier approach to play the game
- Minor adjustments

In particular, the decision of abandoning a system to spawn cows via “rituals”, which had almost been completed according to the original requisites, replaced by a “Moossion” system, that allowed for a much more extendable and expandable experience while also allowing for a progression system to exist, something made too hard via rituals.

Changing such an established system with a new one implied taking on major code refactors, that ended up taking much more time and effort than initially evaluated, which in turn resulted in a scaling down of the requisites.

In the end, other elements took a lot of time to develop, which resulted in some delays on other features, including:

- GUI Features
- Functionalities
- Tests
- Summer holidays

10. Appendices

All Credits

3D models:

Shelters:

Rock Shelter:

<https://assetstore.unity.com/packages/3d/environments/landscapes/lowpoly-environment-pack-99479>

Bash Shelter:

<https://assetstore.unity.com/packages/3d/environments/industrial/low-poly-farm-pack-lite-188100>

Barn Shelter:

<https://poly.pizza/m/7X8q7glGKGA>

Umbrella Beach Shelter: <https://sketchfab.com/3d-models/parasol-lowpoly-beach-umbrella-bac8486298ab41ab884fccb867f1527b>

Treasure Chest Shelter:

<https://sketchfab.com/3d-models/low-poly-treasure-chest-ca63751326084866b8df9a6b4c196b3d>

Sand Castle Shelter:

<https://sketchfab.com/3d-models/big-sand-castle-low-poly-dc012035359441c7b33f39f791f89d95>

Igloo Shelter: <https://sketchfab.com/3d-models/gorilla-tag-mountains-assets-095ed271f20742e18f2ae483bb1145b4>

Cart Shelter: <https://sketchfab.com/3d-models/stylized-wooden-cart-338af2f954e8464c9590e57cc53f62a7#download>

Christmas Present Shelter: <https://sketchfab.com/3d-models/present-low-poly-52163e95890f419ca52af638d90ff901>

Arcade Cabinet Shelter:

<https://sketchfab.com/3d-models/arcade-a9db6062bb994967b8e84fc56ab7058c>

Well Shelter: <https://sketchfab.com/3d-models/low-poly-well-ce043536933847fa8a96352d28d56fb9>

Magic Book Shelter:

<https://sketchfab.com/3d-models/paladins-book-75bec07bb1eb44c1bce2113b67214d82>

Trees:

Paddock 1 Trees:

<https://assetstore.unity.com/packages/3d/environments/industrial/low-poly-farm-pack-lite-188100>

Paddock 2 Trees: <https://sketchfab.com/3d-models/beach-umbrella-low-poly-2c8c7cc2aa154388a5c321c284211236>

Paddock 3 Trees: <https://sketchfab.com/3d-models/christmas-tree-low-poly-2021-ee1024bde6dd4162ba4407bd890e5838>

Paddock 4 Trees:

<https://sketchfab.com/3d-models/free-low-poly-sakura-tree-02c5ca153e8e4e86920690b07146352b>

Fences:

Paddock 1 Fence:

<https://assetstore.unity.com/packages/3d/environments/industrial/low-poly-farm-pack-lite-188100>

Paddock 2 Fence:

<https://brokenvector.itch.io/low-poly-fence-pack>

Paddock 3 Fence:

<https://sketchfab.com/3d-models/low-poly-wood-fence-with-snow-b6e3e7135119421cb11e38ae7024707a>

Paddock 4 Fence:

<https://sketchfab.com/3d-models/low-poly-stone-walls-3e71a31454664216b1284056639106f6>

Soundtrack:

Main Menu:

Gone Fishin: <https://opengameart.org/content/gone-fishin>

Stage 1:

Beary Fishy: <https://opengameart.org/content/gone-fishin>

The Reel Winner: <https://opengameart.org/content/gone-fishin>

Stage 2:

Otherworldly Oceanside: <https://opengameart.org/content/otherworldly-oceanside-day-7>

Stage 3:

Ice Cream Date: <https://opengameart.org/content/ice-cream-date>

Stage 4:

Hope (Orchestral Battle Music): <https://opengameart.org/content/hopeorchestral-battle-music>