Penguin Water War

Game Design Document

Revision: 1.0.0

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# Overview

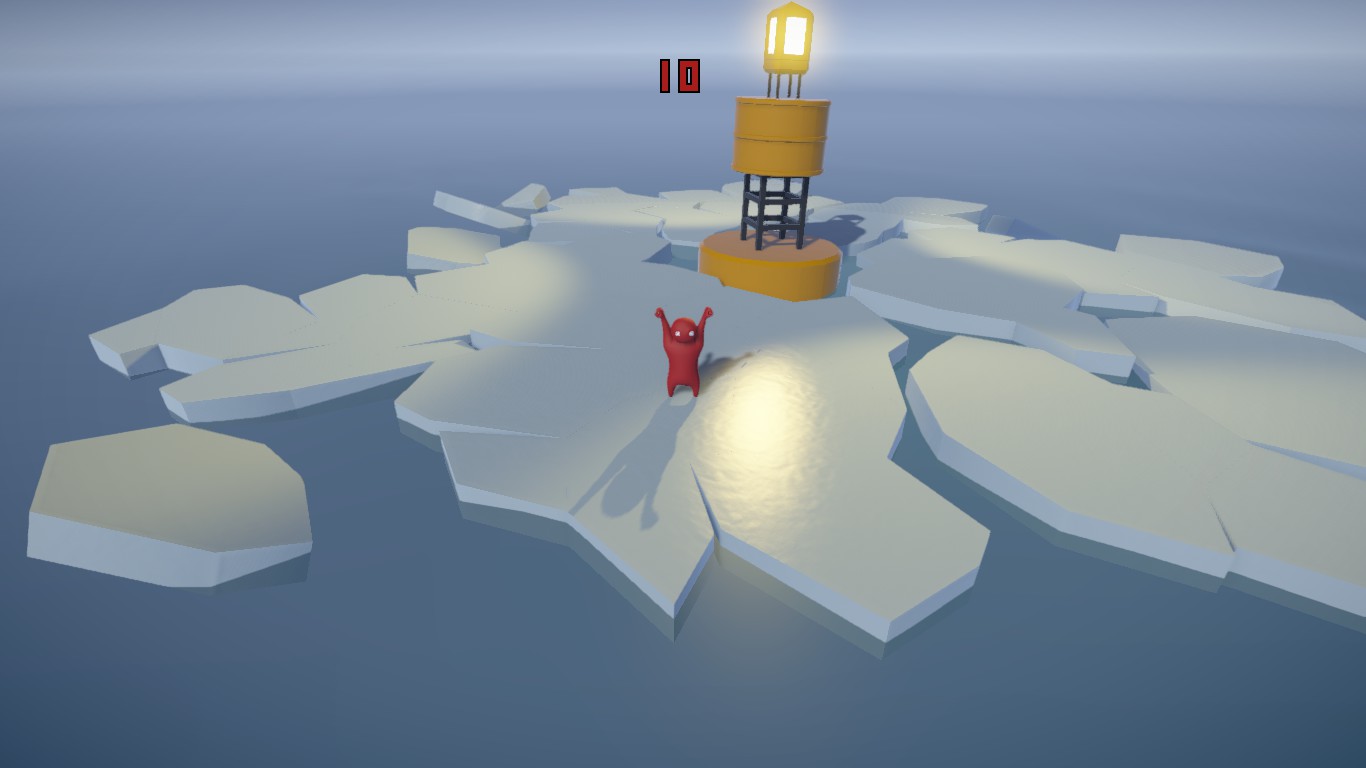
## Summary

Penguin Water War is a local multiplayer (Single Screen) action party game for 2-4 players.

The goal is to shoot other players off the map with the help of a water cannon.

## Aesthetics and style

The game is set in a friendly and playful fantasy South Pole region. There are also mechanical platforms from research stations which bring in some dynamic elements to the various maps.

It’s a 3D game with low poly cartoony graphics, much like Gang Beasts:  
  
(irri, 2015)

# Gameplay

## Gameplay

Before the level is initiated the players must choose the mode followed by the character selection. The player can move around on the map and is able to shoot the other player/s using a water cannon. As the round goes on the player must keep in mind that the area may become smaller at certain intervals because parts of the map will fall away. Players can charge their weapon to increase the area plus the range that it can affect and are stationary during this process. The other players are aware of this as the impact area of this charge shot is visible to all. At set times there will be powerups that spawn on the map which the player can collect (e.g.: increased movement/weapon charge speed) by walking over the powerup icon. The players are required to be attentive towards the other players not shooting them off plus the decreasing size of the play field.

## Win/Lose Condition

Players who fall off the map are out of the current round. The last player standing on the map wins this round (last man standing) and gains a point. The player who gets three points wins the game.

## Input

There are not a lot of input options needed. The recommended input device is a gamepad.

The player can move around with an analog stick or the arrow keys. One button is needed to jump. With another button the water cannon can be charged (holding button down) and activated (release button). While charging, the direction can be changed but the player cannot move around.

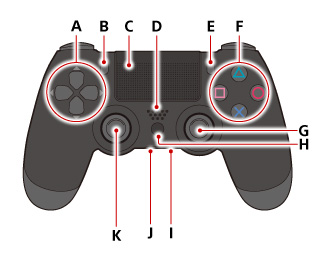
A mapping of a DualShock Controller could look like this (see controller description below):

K (Left analog Stick): Move and rotate

G (Right analog stick): Could also be used for rotating, but not intended

F (Cross): Jump

F (Square or Circle): Charge and shoot water cannon



(Sony Interactive Entertainment Inc., 2019)

## Rules

* Players can’t move while charging the water cannon
* Players can’t move or rotate while in the air
* If a player falls off the map (by himself or by any players water cannon) he is out of the current round
* The last player who doesn’t fall off the map wins this round and gets a point
* The first player that gets three points wins the game
* Different types of powerups can be active at the same time
* If a powerup of one type is already active, powerups from this type can’t be picked up again until the effect is expired.

# References and influences

* Super Mario Sunshine (water cannon)
* Lance A Lot
* Gang beasts

# Target audience

The target audience are people who want to have fun or like to compete with/against their friends. The game is free, but gamepads are highly recommended (if played on PC). The game is suitable for a younger audience due to the friendly art style. A game lasts about 15 to 30 minutes.

# Targeted platforms

The target platform is PC (highest priority), PS4 and Xbox One. The game is optimized to be played with gamepads.

# Monetization model

The game will be released on Steam for 15$ per unit.

# What sets this project apart?

* Penguins fighting in the Antarctic
* Penguins fighting with water cannon

# Graphics & Art

## General

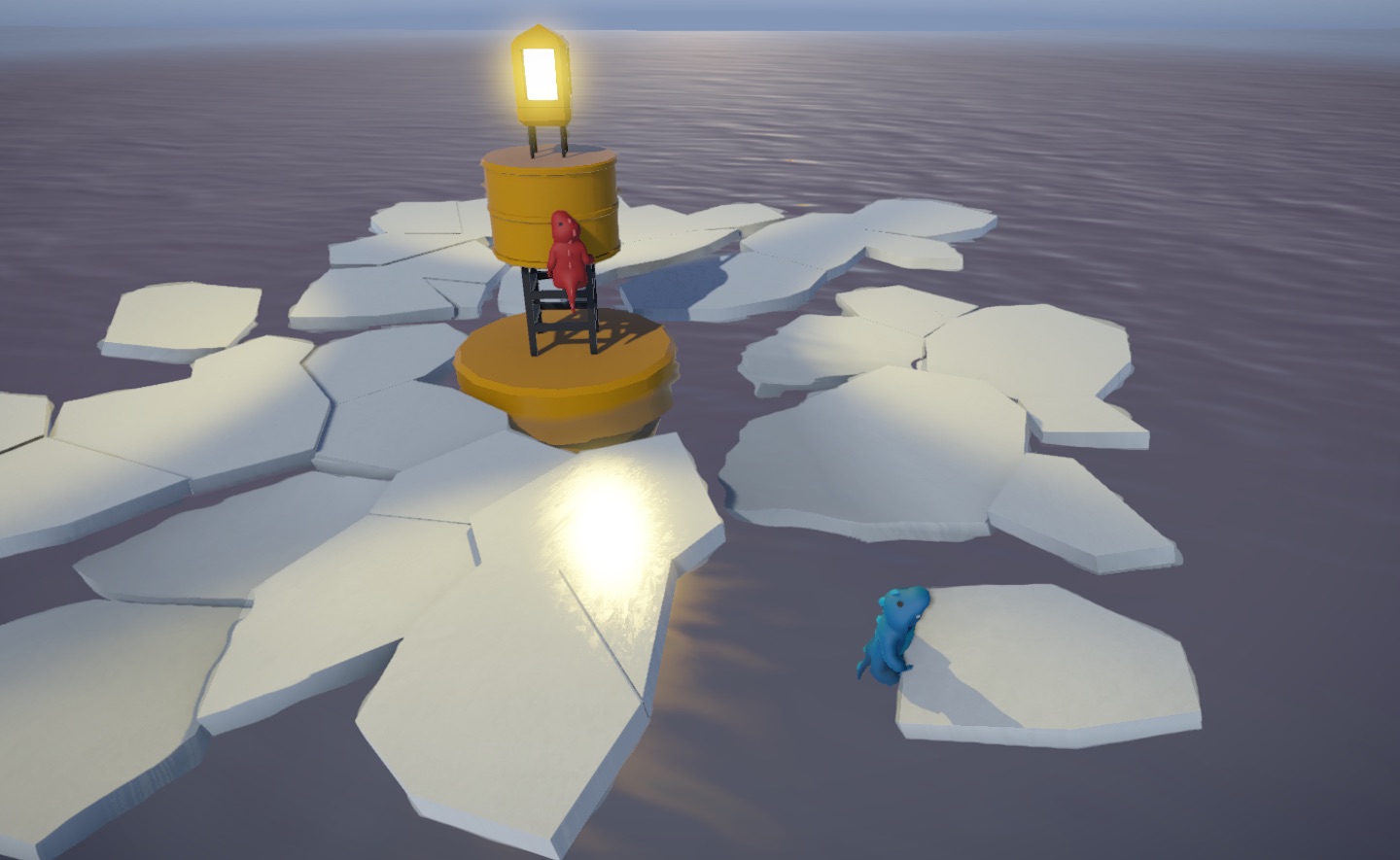
It’s a 3D game that plays in a fantasy South Pole / Antarctica setting. There is not only ice and water, but also different platforms from research stations.

The feeling and colors should be friendly and playful.

Most used colors are white (ice), blue (sky & water).

The platforms and research stations are set in a friendly bright brown or grey color scheme.

The art is low poly, clean and cartoony much like Gang beasts:



(Boneloaf, 2015)

To make the game maps more friendly and interesting, there can also be little funny, unrealistic items (just for the look), wooden boxes (with collision) or obstacles (not movable).

## Characters (Penguins)

The penguins are also low poly and can look a bit unrealistic in favor of playfulness.



(Sony Interactive Entertainment Inc., n.d.)

The penguins always have the color of their player (green, red, blue, yellow). The color will be displayed underneath or above the player.

They will also have hats or other cosmetics to differentiate themselves. Maybe little variations in scale/size.

First look (not final):



## Interface

### Menu

The menu is very simple. At the first screen there is a “Start Game”, “Settings” and “Exit” button.

After the “Start Game” button is selected the next screen with the mode selection appears.

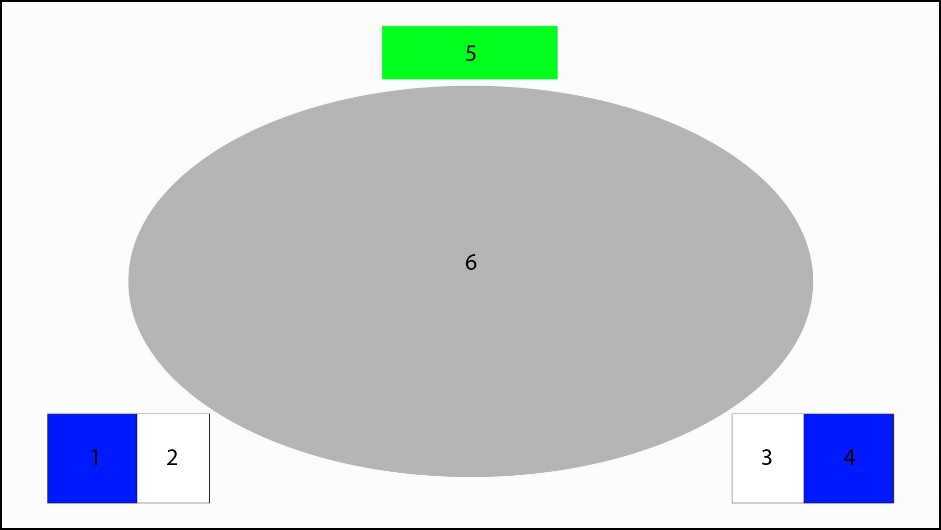
For the last step every player can choose a penguin species. The colors of the players are fixed. Players can also choose the same penguin species.

### Game

The UI in the game only shows the current round and some player information (color, penguin species, won points and active powerups).

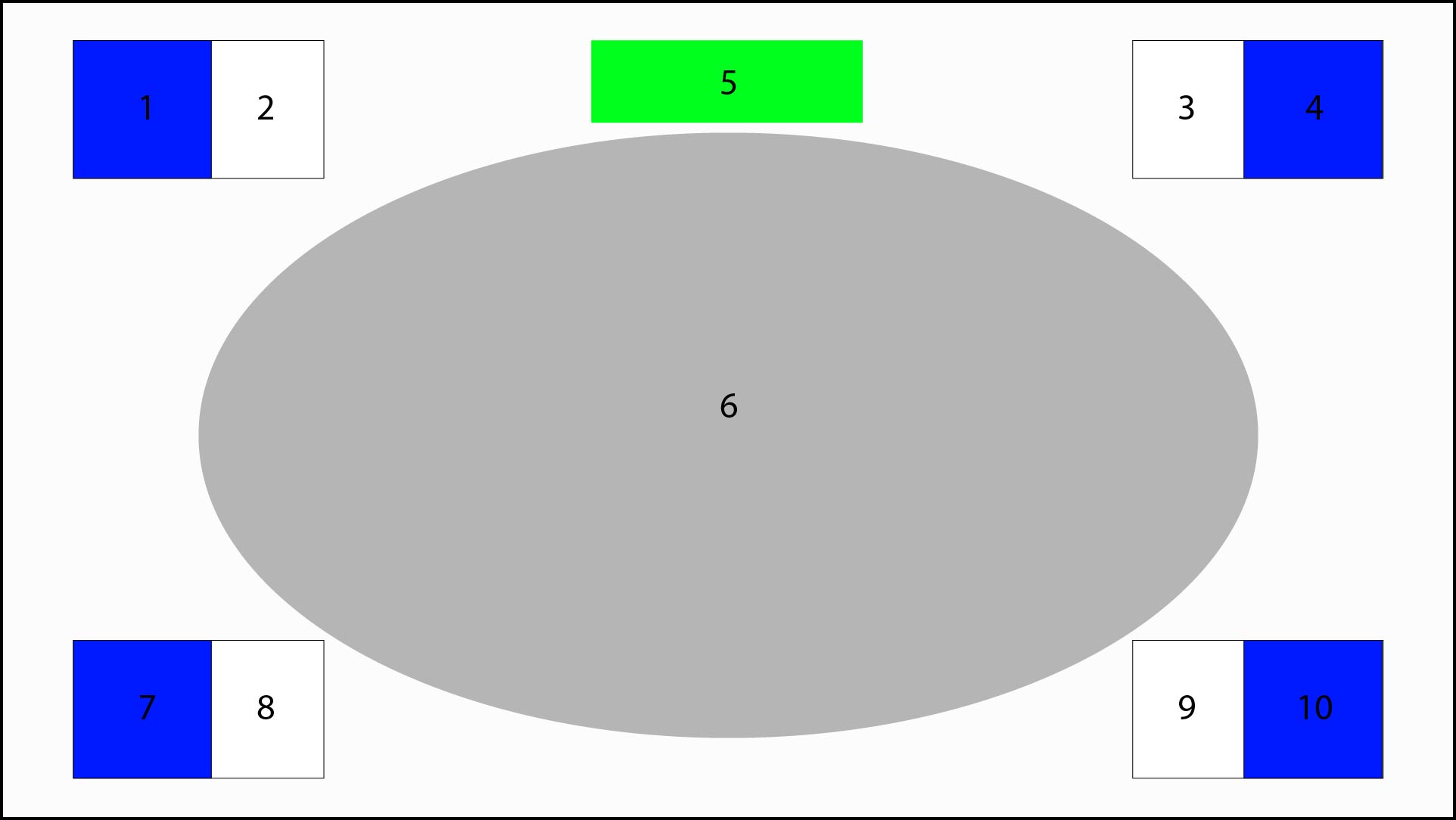
The players should always be seen in the middle of the map (see number 6 on pictures below). This must be solved via map design or camera settings.

A two player game looks like this:



1. Penguin Avatar Player 1 + Color of player
2. Amount of points and additional info (e.g. current powerups)
3. Same as 2. but for player 2
4. Same as 1. but for player 2
5. Current Round
6. Space where all players should be seen

The UI for a four-player game looks similar, however the info boxes of player 1 and player 2 slide up, so player 3 and 4 are bottom left and bottom right:



1. Penguin Avatar Player 3
2. Player 3 information
3. Player 4 information
4. Penguin Avatar Player 4

After a game ends a brief overview of the winner and the points of all player appears. Then a rematch with the same settings can be started.

# Music & Sound

## Music

The music is used in the menu and game as normal background music. It should create a funny, playful and friendly reaction.

## Sound

The sound should underline the actions in a funny and playful way. The most important sound effect is the one from the water cannon charging and firing, so other players can recognize this sound and plan their next action.

# Story and Characters

## Story

The South Pole has changed…

Because of global warming, the nice and cold places in the South Pole are decreasing drastically.

So, the different penguin species must fight for these valuable spots. The only thing they can use to fight with, is a huge water cannon.

There are four different penguin species in the game: emperor penguin, chinstrap penguins, rockhopper penguin and jackass penguin.

## Characters

### Generally

There are only penguins in the game. Generally, the penguins don’t like to talk but they make funny penguin sounds. There are all pugnacious because they want to have their own safe spots on the ice.

### Emperor penguins

Emperor penguins are the tallest and heaviest penguins of all penguin species, but their weight also makes them a little bit slower than the other species (no impact on gameplay).

They are known as merciless slayers in the penguin world but in reality they are soft and gentle. They only started to fight because the other penguin species attacked first.

### Chinstrap penguins

The Chinstrap penguins are not the smartest out of all species. Sometimes they try to crack stones with their bald head. That’s why they are also called “Stonecracker penguins”.

Because of their lower intelligence they often get offended by other penguin species. They now want to make others pay for that.

### Rockhopper penguins

The Rockhopper penguins are much smaller than the other penguin species. But they compensate this with their intelligence.

They always plan their next move ahead. The other species hate to play chess against the rockhopper penguins (they always win).

### Jackass penguins

Normally just seen in South Africa, the jackass penguins had to move to the Antarctic.

They are called the “outsiders” and are hated because their appearance is different from the other penguin species.

The jackass penguins just want to survive. Luckily, they love to shoot other animals (learned in South Africa). So just give them a nice big water cannon and they’re happy.

# Game Elements

## Penguin (Player)

### Properties

* Position
* Direction
* Movement speed
* Species
* Color
* Active powerups
* Water cannon charge time

### Behaviors

A player can move, rotate and jump freely on the map. While he is charging his water cannon he can’t move nor jump (only rotate to aim).

If a player gets hit by the water cannon of another player, he is pushed away by the power of the water cannon.

### Relationships

* Water cannon: equipped and usable
* Platforms: walkable/jumpable

## Water cannon

### Properties

* Power
* Range
* Impact area (by power and range)
* Timeout duration (refill/reload)

### Behaviors

A water cannon can be charged and fired. The greater the charge, the greater the power and range. After a shot is fired, the next shot is locked until a certain time (timeout duration). The timeout is shown visually by a bar above the penguins.

### Relationships

Each player has a water cannon equipped.

## Destroyable ice platforms

### Properties

* Position
* Range / Collision
* Timer

### Behaviors

An ice platform has a fixed place on the map. After a certain time the platform will glow, vibrate and make a sound (so the players are warned). After another 5 seconds the platform will be destroyed (falls into the water).

### Relationships

Players can move and jump on it.

## Mechanical platforms

### Properties

* Start/End position
* Current position
* Speed

### Behaviors

Mechanical Platforms have a fixed start and end position on the map, in which they move in a certain speed.

### Relationships

Players can move and jump on it.

## Items (Powerups)

### Properties

* Position
* Spawn timer
* Effect duration
* Effect multiplier
* Effect type
  + Movement speed increasing
  + Jump power increasing
  + Water cannon power or range increasing
  + Water cannon reload speed increasing
  + Water cannon charge speed decreasing

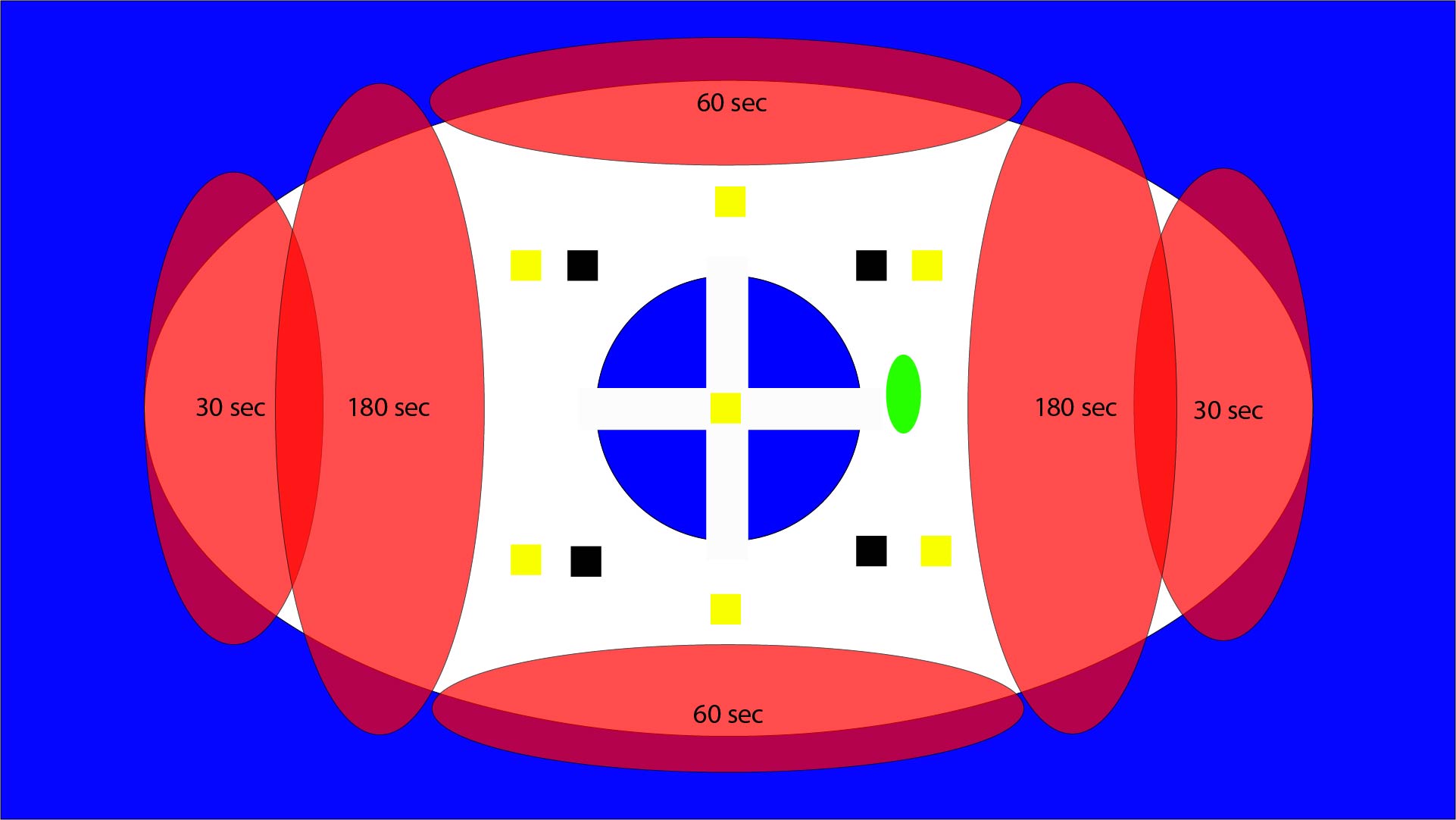
### Behaviors

After a certain amount of time, items will spawn at random positions (several positioning areas are defined on the map). The items can be collected by players walking over them and will be activated instantly. The different effects of the powerups are cumulative but do not stack (only one type of effect). The effect will last for a certain amount of time.

# Maps

## Map 1 (ice land)

This maps only consist of ice. But some of the ice areas are destroyed after a certain amount of time played. In the beginning it’s easy to move around. After a while the map becomes smaller and smaller.



*Blue: Water*

*White: Ice*

*Red: Destroyable ice platforms (get destroyed after 30, 60 or 180 seconds)*

*Brown: Mechanical platform areas-> moves in this area*

*Black: Obstacles*

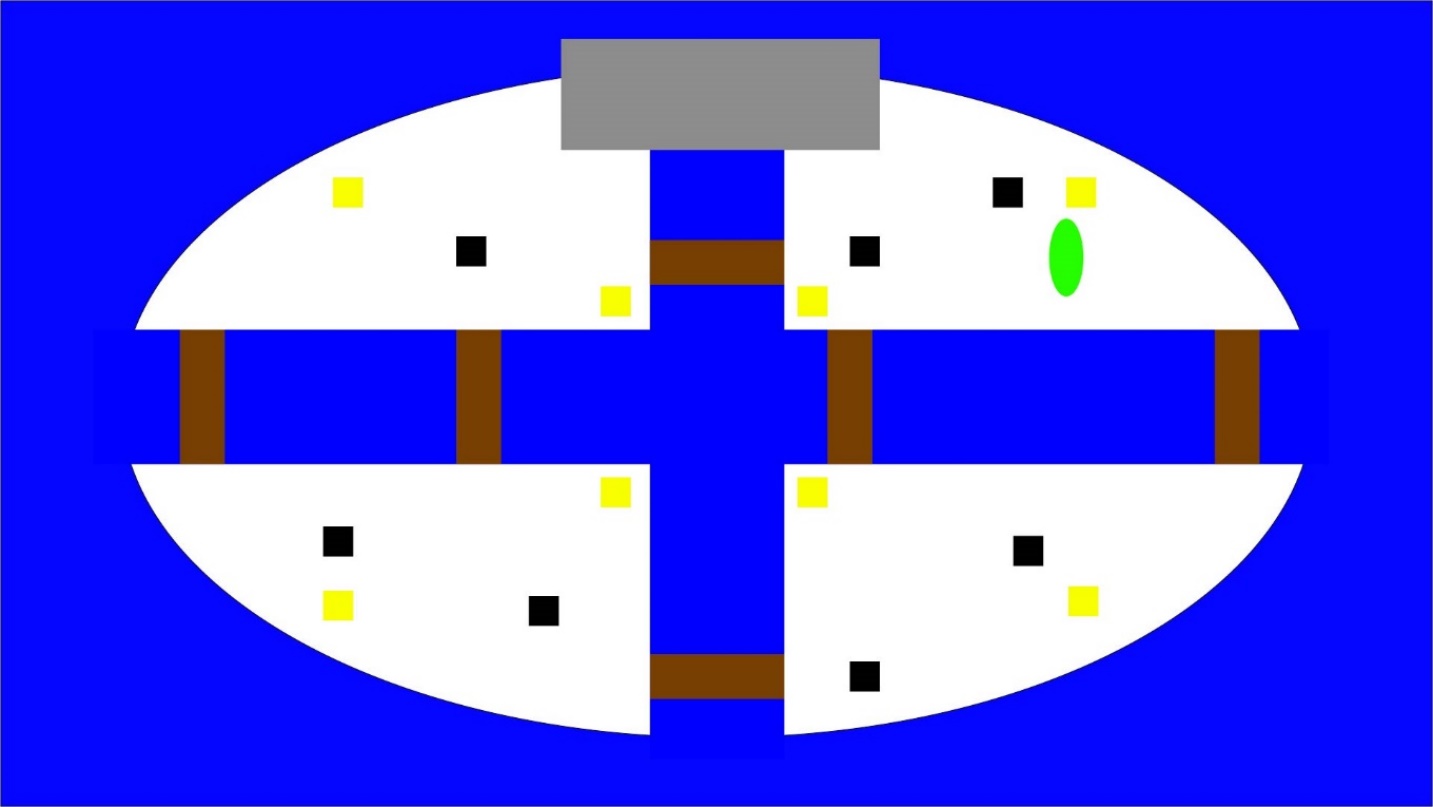
*Grey: Research Factory*

*Yellow: Powerup spawn points*

*Green: Penguin (Player) size*

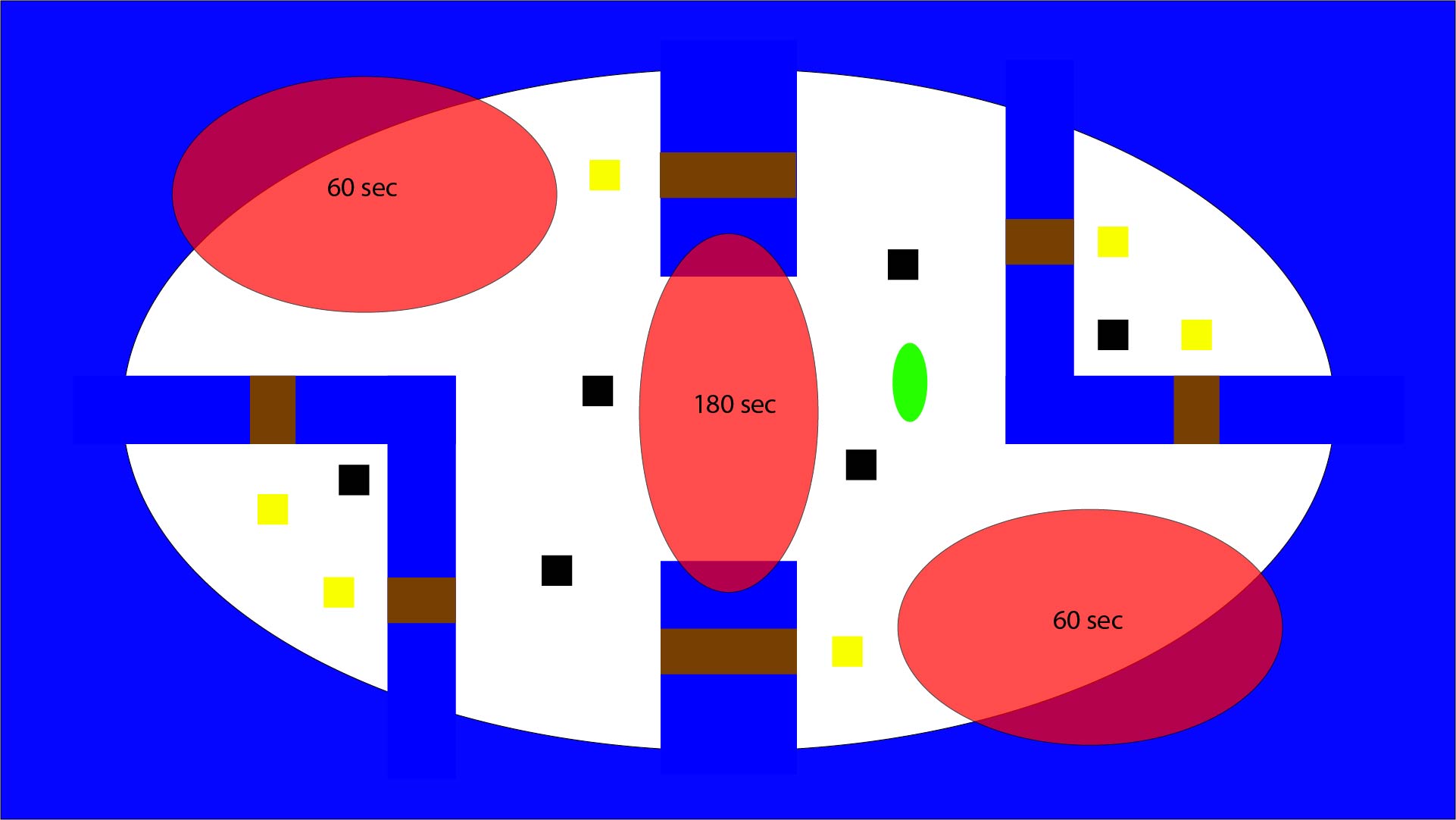
## Map 2 (research station factory)

This map is divided in four ice islands. Between these islands there are different mechanical platforms from a research station, which brings the players to the other side.



## Map 3 (Mixed)

This map is a mixture of ice areas and mechanical platforms. This map offers the most action.



# Modes

In each mode the map will be selected randomly and changed after a round is over.

## Default

In the default mode, the players fight until one player gets three points and wins this game.

## Speed mode

In the speed mode, everything gets faster: Player movement, water cannon charge/reload time and the moving platforms.

## Team mode (2vs2)

In this mode 2 players fight against 2 other players.

# Team

## Alex Lötscher

Project lead, game design, QA

## Daniyal Dehghany

Level design, level programming

## Danja Künzle

UI, core programming

## Kegan Hürlimann

Level design, sounds & music

## Philipp Mathis

Core programming, 3D modelling and animations

# Production Pipeline

## Game Engine

Unity will be used as game engine (version 2019.3.1f1).

## Asset Tools

<https://www.soundsnap.com/>

<https://www.gamedevmarket.net/>

## Development milestones

### Prototype

* Penguin movement
* Water cannon

### First playable

* First map (without any effects)
* Powerups
* Win-/Lose condition

### Content

* Penguin model and animations
* Water cannon model and animations
* Map 2 and 3
* Destroyable ice platforms
* Mechanical platforms
* Obstacles

### Beta

* Testing and optimization

### Release

* Polish and release

## Schedule

**21.02.2020**: Penguin Movement and Water cannon

**28.02.2020**: Win-/Lose condition

**06.03.2020**: Map 1 & Powerups

**13.03.2020**: Map 2 & 3 with dynamic elements (destroyable ice platforms, mechanical platforms)

**19.03.2020**: Menu & UI (simple and functional) -> Prototype ready

**25.03.2020**:Prototype testing

**27.03.2020**: UI (final), sound & music

**03.04.2020**: 3D models & animations

**10.04.2020**: Testing, bugs and buffer

**15.04.2020**: Polish and finish

**16.04.2020**:Release

# Assets Needed

## 2D

* Textures
  + Menu & UI
  + Map textures

## 3D

* Characters
  + Emperor penguin
  + Chinstrap penguins
  + Rockhopper penguin
  + Jackass penguin
* Weapon
  + Water cannon
* Items
  + Powerup box/icon
* Environmental
  + Mechanical platforms
  + Ice platforms
  + Obstacles (wooden/steel boxes)

## Sound

* Ambient
  + Water
  + Wind
  + Destroyable ice platforms
  + Mechanical platforms
* Player sounds
  + Character Movement (move and jump)
  + Character hit by water cannon
  + Water cannon charging
  + Water cannon shoot
  + Character out of map (death)
* Menu
  + Change option
  + Select option
  + Select Penguin

## Code

* Player script
* Map script
* Menu script
* Camera script

## Animation

* Environment Animations
  + Destroyable ice platforms
  + Mechanical platforms
* Character Animations (Penguin)
  + Move
  + Jump
  + Water cannon charge & shoot

# Reference Lists

* irri (2015). Step 1:"The Bouy Stage" is reccommended. [image] Available at: https://steamcommunity.com/sharedfiles/filedetails/?id=470652616 [Accessed 18 Feb. 2020].
* Sony Interactive Entertainment Inc. (2019). Front. [image] Available at: https://manuals.playstation.net/document/en/ps4/basic/pn\_controller.html [Accessed 18 Feb. 2020].
* Boneloaf (2015). Stages ice map. [image] Available at: https://www.steamkiwi.com/article=18291/patch-notes-for-the-gang-beasts-026-unstable-alpha-build [Accessed 18 Feb. 2020].
* Sony Interactive Entertainment Inc. (n.d.). gang-beasts-screen-03-ps4-eu-06may16. [image] Available at: https://www.playstation.com/de-ch/games/gang-beasts-ps4/ [Accessed 18 Feb. 2020].

Revision History

**v1.0.0 – 19.02.2020**

Revised by whole team – ready for hand over

**v0.0.5 – 19.02.2020**

Textual revision from Kegan Hürlimann

**v0.0.4 – 18.02.2020**

Add reference lists

**v0.0.3 – 16.02.2020**

Add/Merge inputs from Philipp Mathis

**v0.0.2 – 15.02.2020**

Add/Merge inputs from Danja Künzle

**v0.0.1 – 30.01.2020**

First version