Game Design Document

S4G Battle Kart Arena

Content

1. Concept

Name: S4G Battle Kart Arena
Genre: Racing
Gameplay: Mario Kart - Battle Modes
Game Goal: Defeat your friends in different game modes
Main features: alternative game modes, character and items mixed with S4G projects

2. Vision

S4G Battle Kart Arena is a fun pick-up & play racing game inspired by Mario Kart battle modes. Play as characters of old and new S4G projects alike and experience their worlds in a new way. The game is intended to bring together long time fans but is also a perfect introduction to S4G games for new players.

3. References

- our main gameplay reference is the Mario Kart series
- we orientate ourselves on Game Modes from different parts
- at the same time we want to keep the pickUp and play character
- also the driving physics and the basic gameplay should be based on Mario Kart
- there are few to no other games that are similar to the battle modes and/or handle them as independent games
- a complete overview of the Mario Kart series can be found in Mario Kart References (LINK)

4. Goal of the Game

- the main goal is to defeat the other players in as many games as possible
- smaller targets depend on the individual mode

5. Mechanics

5.1. Driving Behavior

- the driving behavior is based on the Unity Template and should be developed further and further towards mario kart
- the speed (forward and backward) are the most important balancing elements
- also the acceleration itself can be adjusted
- If the kart hits a collision, the bounce value determines the strength of the rebound
- successful drifting gives a short speed boost

5.2. Item-Usage

- Player is able to drive through game objects which give the player a random item
- Randomness is defined by the Item Overview (LINK) table
- Not every item is available in every game mode, the exact settings are written down in the Item Overview (LINK) table
- a description of every item can be found in Items (LINK)

6. Objects and Level elements

6.1. Item PickUps

- Item PickUps are placed through the level
- if a player hits the PickUp collision he will get a random item and the PickUp will be destroyed
- the distribution of probability is determined by the script
- Item PickUps will respawn after a specified time

6.2. BoostLines

- BoostLines can be placed through the level
- they give a short boost speed if a player drives over it
- they can be used unlimited times
- every player can use every BoostLine

6.3. Ramps

- ramps are simple environment object which are only relevant for the Level Design Blockout
- the ramp should be integrated into the environment and disappear optically
- they have a individual slope
- it can be used for connecting different height levels

● it can creates jump sections

6.4. Non-drivable ground

● special ground inside of the level
● should stand out visually from the normal ground
● if a player drives over it his speed will be radically reduced

6.5. Shines

● Shines are special environmental objects of the Shine Runners game mode
● collectable to earn points
● spawn points are placed through the level
● if a player hits the collision of a Shine he will earn a point

6.6. Goals

● Goals are special environmental objects of the Soccer game mode
● at least two of them should exist to play this game mode
● if a ball is inside a goal a team earns a point
● should be big enough to shoot a ball into it
● should be small enough to defend it
● goals can be freely placed and scaled by the Level Designer for every stage

6.7. Soccer Ball

● the Soccer Ball is a important element of the Soccer game mode
● should be fairly placed by the Level Designer
● if the ball touches one of the Goals, the corresponding team earns a point
● the ball will also respawn if he touches the Respawn Trigger

6.8. Respawn Trigger

● the Respawn Trigger needs to be placed under every level
  ○ even level without real holes need a respawn trigger in order to prevent Unity-Physic bugs
  ○ the trigger needs to be scaled wider than the stage size
● deep water can also be used as a Respawn trigger
● if a player touches a Respawn Trigger he will randomly respawn at one of the 4 Respawn Points

6.9. Respawn Points

● every stage contains exactly 4 Respawn Points
● the final Respawn Point for every respawn is chosen randomly via script

7. Game Modes

7.1. Balloon Battle

- based on the classic Mario Kart Battle Mode
- all items available
- player has 4 lives
    - can be lost by hitting enemy items
    - can be lost by falling off the stage
- the player with the last remaining lives wins
- no time limit
- no gaps needed

7.2. Poolparty

- mix of the game "Pool Party Arena" and the Balloon Battle mode
- Water Bombs are the only possible attack
- player has 4 lives
    - can be lost by hitting enemy items
    - can be lost by falling off the stage
- the player with the last remaining lives wins
- stage need gaps to fall into
- No time limit

7.3. "Shine Runners"

- free for all (deathmatch)
- Shines spawn randomly on the floor
- after a short time limit karts with the least amount of Shines are eliminated
- the last active player wins
- Shines can be lost by hitting enemy items or falling off the stage
- all items are available
- no gaps needed
- Short Time limit (multiple rounds)

7.4. Soccer

- soccer with karts
- goal of the mode is having more points than the other team
- points can be earned by moving the ball into the opponent's goal
- 1v1 or 2v2 teams
- all items available
- ball will return at its starting position after a team receives a point
- players will return at their starting position after a team receives a point
- map needs at least two fair placed goals
- limited time

7.5. Obstacle Parkour Race

- the players have to reach a goal as fast as possible and always have the choice between different Paths
- the player who reaches the goal first wins
- map needs to have multiple split paths with different challenges
- track needs to have a start and an end point (no circle)
- long time limit

7.6. Super-Bounce

- every player has a much higher bounce value
- goal of the mode is to kick every other player into a gap and be the last remaining player
- no respawn (just one try)
- no attack item at all
- stage need gaps to fall into
- no time limit

7.7. Capture the Flag

- every team tries to steal the opposing flag and tries to bring it to the own base
- a team wins if every opposing flag is in their own base or if the time limit is over and they have the most points
- a team can earn points by stealing a flag (small amount) or bring it into the own base (higher amount)
- 2v2 teams
- players can steal back their flag by shooting the opposing kart that has the flag or stealing the flag back from the opposing base
- the flag can only be stolen back from the enemy base after an extra timer has expired
- all items available
- stage should **not** contain gaps
- time limit

8. Stages & Level Design

8.1. General information

- a level or map is called **stage**
- every stage thematized one S4G game
- stages support as many game modes as possible but at least the Balloon Battle Mode
- a stage has to be created based on a S4G project and **not** on a game mode
- the exact overview about stages and game modes can be found in Stage Overview (LINK)
- the exact workflow to create a new stage can be found in Level Design Document (LINK)

8.2. Pool Party Arena

8.2.1. Overview

- based on "Pool Party Arena (LINK)"
- supported game modes:
  - Balloon Battle
  - Poolparty
  - Shine Runners
  - Super Bounce

8.2.2. Description

The Pool Party Arena stage is based on a local multiplayer game where you try to push other players into the pool. You will play on a small pool platform surrounded by deep blue water. Available game modes: Balloon Battle, Poolparty and Shine Runners

8.3. Poly Bomb

8.3.1. Overview

- based on "Poly Bomb (LINK)"
- supported game modes:
    - Balloon Battle
    - Shine Runners
    - Soccer

8.3.2. Description

The Poly Bomb stage is based on a fast, competitive local multiplayer game where players fight against each other, under pressure of a time bomb. You will play in a digital and science fiction like environment. Available game modes: Balloon Battle, Shine Runners and Soccer

8.4. Pin

8.4.1. Overview

- based on "Pin (LINK)"
- supported game modes:
    - Balloon Battle
    - Shine Runners
    - Soccer
    - Capture the Flag

8.4.2. Description

The Pin stage is based on a cute family friendly point & click adventure about a quirky robot. The environment is placed in a traditional japanese village full of talking animals. Available game modes: Balloon Battle, Shine Runners and Soccer

8.5. Just Humphrey

8.5.1. Overview

- based on "[Just Humphrey (LINK)](#)"
- supported game modes:
  - Balloon Battle
  - Shine Runners
  - Capture the Flag

8.5.2. Description

The Just Humphrey stage is based on a quirky Point and Click Adventure about Humphrey the hamster. You will play in a inhabited doll house. Available game modes: Balloon Battle and Shine Runners

8.6. Gork&Clyde

8.6.1. Overview

- based on "[Gork&Clyde (LINK)](#)"
- supported game modes:
  - Balloon Battle
  - Shine Runners
  - Capture the Flag

8.6.2. Description

The Gork&Clyde stage is based on a local co-op puzzle platformer about two different and unique Aliens. You will play in a flying abandoned temple - the home of an extinct Civilization. Available game modes: Balloon Battle and Shine Runners

8.7. Gravity Combat

8.7.1. Overview

- based on "[Gravity Combat (LINK)](#)"
- supported game modes:
  - Balloon Battle
  - Pool Party Arena
  - Shine Runners
  - Super Bounce
  - Capture the Flag

8.7.2. Description

The Gravity Combat stage is based on a fast paced Arena Shooter. You will play in a futuristic space station with a lot of curves and beveled corners. Available game modes: Balloon Battle, Pool Party Arena and Shine Runners

8.8. Vei

8.8.1. Overview

- based on "Vei (LINK)"
- supported game modes:
    - Balloon Battle
    - ???

8.8.2. Description

The Vei stage is based on a story driven, exploratory adventure, in which the player restores the nature of a devastated world. You have the chance to dive into this world by playing this stage. Available game modes: Balloon Battle

8.9. Echoes of Etrya

8.9.1. Overview

- based on "Echoes of Etrya (LINK)"
- supported game modes:
    - Balloon Battle
    - Shine Runners
   - Capture the flag

8.9.2. Description

The Echoes of Etrya stage is based on a third person 3D time puzzle game in which the player solves puzzles by recording his actions for a copy of himself. You will have the chance to play in its ancient temple. Available game modes: Balloon Battle and Shine Runners

9. Items

A whole overview about the items and their Game Modes is written down in Item Overview (LINK).

9.1. Water Bomb

- the main item of the poolparty game mode
- original project: Pool Party Arena
- bounces against a kart and kicks it
- despawns after a certain tme
- special game mode: in modes with health points it will reduce one health, in modes with points it will reduce a point
- Mario Kart reference: none
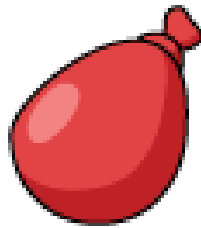
9.2. Stone Ball

- original project: Archys Adventure
- slows down a hitten Kart
- is able to survive up to 3 collisions
- despawns after a certain tme
- special game mode: in modes with health points it will reduce one health, in modes with points it will reduce a point
- Mario Kart reference: green shell
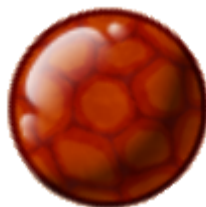
9.3. Spiri

- original project: Spirit Forest
- player drops a static wall with collision behind him
- will block player
- despawns after a certain time
- Mario Kart reference: Fake item block

9.4. Seeds

- original project: Tree of Dreams
- player drops a seed behind him
- will slow down a player if he drives over it
- despawns after a certain time
- Mario Kart reference: Banana

9.5. Laser Cannon

- original Project: Gravity Combat
- player is able to shoot 5 times in a small range
- will slow down a hitten player
- special game mode: in modes with health points it will reduce one health, in modes with points it will reduce a point
- Mario Kart reference: Fire flower

9.6. Airstream

- original project: Gork&Clyde
- will give the player a short speed boost if activated
- Mario Kart reference: Mushroom
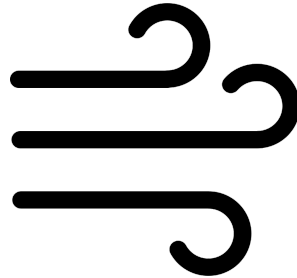
9.7. Slime

- original project: A Hero's Tale: Slime Edition
- will spawn a slime sprite at the enemies camera
- slime sprite will despawn after a certain time
- Mario Kart reference: Blooper

9.8. Fire Salamander

- original projekt: Onions Adventure
- fire create a fire cone in front of the player which hit near enemies
- will slow down hitten enemies
- Mario Kart reference: none.

9.9. Boomerang

- original projekt: Booma
- spawns a boomerang in front of the player which will fly to a certain position and back to the player
- slows down hitten player

9.10. Bamboo Stick

- original project: Pin
- will spawn a bamboo stick which will rotate around the player
- slows down hitten player
- Mario Kart reference: 3 green shells

10. Controls

10.1. Controller
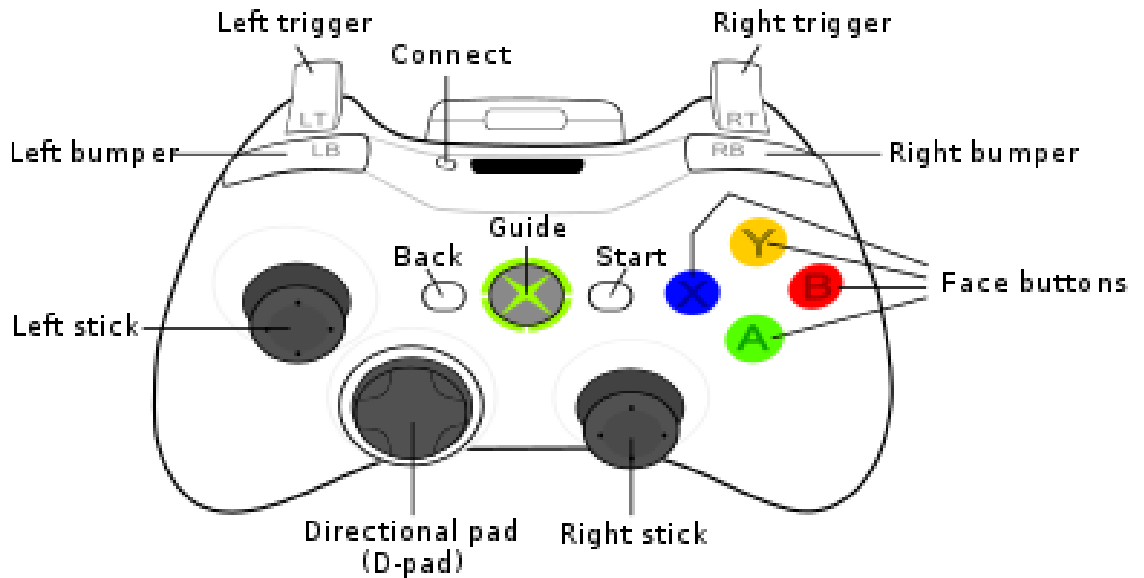
Input	Ingame	Menu
Left Stick	Steering left and right	
X	Reverse gear	
B	Speed up	Back
A		Confirm
Back	Respawn	
Left Bumper	Use Item	
Right Bumper	Honk	
Right Trigger	Drifting	
Directional pad		Move up, down, left or right

10.2. Keyboard

10.2.1. Player One

Input	Ingame	Menu
A	Steering left	Move left
D	Steering right	Move right
W	Speed up	
S	Reverse gear	Confirm
ESC	Pause	Back
E	Use Item	
Q	Honk	
Shift	Drifting	
F1	Respawn	

10.2.2. Player Two

Input	Ingame	Menu
left arrow button	Steering left	Move left
right arrow button	Steering right	Move right
up arrow button	Speed up	
down arrow button	Reverse gear	Confirm
ESC	Pause	Back
Shift	Use Item	
Enter	Honk	
Strg	Drifting	
F2	Respawn	

10.2.3. Player Three

Input	Ingame	Menu
B	Steering left	Move left
M	Steering right	Move right
H	Speed up	
N	Reverse gear	Confirm
ESC	Pause	Back
J	Use Item	
G	Honk	
V	Drifting	
F3	Respawn	

10.2.4. Player Four

Input	Ingame	Menu
Num 4	Steering left	Move left
Num 6	Steering right	Move right
Num 8	Speed up	
Num 2	Reverse gear	Confirm
ESC	Pause	Back
Num +	Use Item	
Num 7	Honk	
Num Enter	Drifting	
F4	Respawn	

11. UI

11.1. Ingame UI

11.1.1. Item Slot

- will show the icon of the collected item
- has a default icon which is placed if the player has no item
- consists of a static background and a place for the icons
- every icon sprite needs to be connected to the player/inspector

11.1.2. Mini Map

- shows the basic stage outlines
- is placed in the middle of the screen
- highlights special elements with extra icons
    - player
    - goals
    - shines
    - soccer ball
- extra icons are the same in every stage and connected to the prefab of the element
- consists of an extra camera which needs to be adjusted above the stage

11.1.3. Timer

- is used in several game modes
    - Soccer
    - Shine Runners
- a text field which is edited via script
- shows remaining time
- is deleted via script if not necessary for the game mode
- script will show integers in the text field even if it calculates with floats

11.1.4. Player Health Points

- are used for several game modes
  - Balloon Battle
  - Poolparty
- shows the number of the remaining health points for every player
- has a icon next to it which symbolizes the health
- is deleted via script if not necessary for the game mode
- a text field which is edited via script

11.1.5. Team Points

- shows the number of points for every team
- a text field which is edited via script
- different color based on the team color
- is used by the soccer game mode
- on the upper side of the screen

11.1.6. Player Shine Points

- shows the number of shines which each player has collected
- one text field for every player
- a text field which is edited via script
- is used by the Shine Runners game mode

11.2. Main Menu

- the first screen the player gets in touch with
- contains buttons to other Screens
  - Settings
  - Credits
  - Game Mode Selection (Start)
- contains buttons to external websites
- contains a Exit button

11.3. Game Mode Selection

- player is able to select one of the game modes
- contains a back button
- selected game mode is saved in a gameobject

11.4. Player Selection

- player is able to choose the number of player
- singleplayer, two player or four player
- contains a back button

● Choice is saved in a gameobject

11.5. Kart Selection/Kart Editor

● all players are able to choose and customize their kart
● player has to select one of the karts
● after this he can customize his kart
● contains 4 "screens" with individual back buttons
● contains a main back button

11.6. Map/Stage Selection

● player is able to choose his stage
● overview with screenshots of every stage
● player will get a description of the stage and is able to select the map or to go back to the overview
● contains a back button
● player is able to scroll through the buttons
● Selection of a stage will open the loading screen while the scene loads

11.7. Loading Screen

● opens if the game tries to load a stage
● has a animated progress bar (loading bar)
    ○ contains a editable, static background
    ○ contains a editable foreground which fill amount is controlled by a script
● opens the scene of the stage after it is ready

11.8. Credits

● shows the name and role of every team member
● needs to be extended continuously
● contains a back button

11.9. Settings

● contains a back button
● contains adjustments for music and graphic

12. Team

- Since we are a open and growing team all of our team members can be found in Team (LINK)
- This is an overview about our main intern team:

Norbert Haacks	Producer / Vision Keeper / Stakeholder
Franziska Richter	Lead Game Designer & Co Producer, Level Designer, Programmer
Linus Kammer	Game Designer & Level Designer, VFX
Katharina Batzel	Lead Artist & Co Producer
Anastasia Haar	2D Character Artist
Luca Hintzen	2D Character Artist
Mohammad Malandi	2D Character Artist
Stefanie Jeske	2D Artist
Nora Symmank	2D Environment Artist
Daniel Oppermann	3D Artist (Karts)
Antonio Waletzki	3D Artist (Character) & Animation
Nicole Arzer	2D Marketing Artist (Illustration)
Michelle Lottra	2D Marketing Artist (Video)
Lisa Wegner	2D UI Artist, Environment, Marketing

13. FAQ

13.1. I want to work with the engine, what do I have to keep in mind?

Great! You can find every important information in our [Engine Workflow (LINK)](#). You can also ask our programmer if you have a detailed question.

13.2. I want to pitch our game to someone else, what can I show her/him?

What a nice idea. Let the project grow and show our [Pitch presentation (LINK)](#)! If you think the presentation could need an update, just ask one of our Leads and we will help you.

13.3. I think this game needs a raccoon. Who can I talk to about this?

No, Norbert. This game does not need a raccoon.

13.4. Why did we decide against bringing the real world of S4G into the game?

We want to put the worlds of S4G projects in the foreground. The Battle is supposed to be a battle between all the games worked out with a lot of emotions. Since the game world itself is in the foreground, we decided against bringing real people or rooms into the game. Furthermore, there are numerous real people behind the projects, which are already represented by them. However, we do allow small features based on the school management, which is not represented by individual projects. However, these should never be in the foreground.

13.5. Will the characters of all projects be represented in the game?

Since we are only a small team, this will not be possible until the end of the internship. But in the future it should be the goal to include all characters in the game so that every project is represented worthy.