

Prototype:

# Aquario Kart: Double Splash!!

Team Markedly Minified Olives

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# Prototype Goals

Are kart racing games fun?

# Prototype Goals

Are kart racing games fun?

## List of best-selling video games

From Wikipedia, the free encyclopedia

List

| Rank | Title                                      | Sales       | Platform(s)    | Initial release date             | Developer(s) <sup>[a]</sup> | Publisher(s) <sup>[a]</sup> | Ref. |
|------|--|-------------|----------------|----------------------------------|-----------------------------|-----------------------------|------|
| 1    | <i>Minecraft</i>                           | 200,000,000 | Multi-platform | November 18, 2011 <sup>[b]</sup> | Mojang Studios              | Mojang Studios              | [3]  |
| 2    | <i>Grand Theft Auto V</i>                  | 135,000,000 | Multi-platform | September 17, 2013               | Rockstar North              | Rockstar Games              | [4]  |
| 3    | <i>Tetris</i> (EA)                         | 100,000,000 | Mobile         | September 12, 2006               | EA Mobile                   | Electronic Arts             | [5]  |
| 4    | <i>Wii Sports</i>                          | 82,900,000  | Wii            | November 19, 2006                | Nintendo EAD                | Nintendo                    | [6]  |
| 5    | <i>PlayerUnknown's Battlegrounds</i>       | 70,000,000  | Multi-platform | December 20, 2017                | PUBG Corporation            | PUBG Corporation            | [7]  |
| 6    | <i>Super Mario Bros.</i>                   | 48,240,000  | Multi-platform | September 13, 1985               | Nintendo                    | Nintendo                    | [c]  |
| 7    | <i>Pokémon Red / Green / Blue / Yellow</i> | 47,520,000  | Multi-platform | February 27, 1996                | Game Freak                  | Nintendo                    | [d]  |
| 8    | <i>Wii Fit and Wii Fit Plus</i>            | 43,800,000  | Wii            | December 1, 2007                 | Nintendo EAD                | Nintendo                    | [6]  |
| 9    | <i>Tetris</i> (Nintendo)                   | 43,000,000  | Game Boy / NES | June 14, 1989                    | Nintendo R&D1               | Nintendo                    | [e]  |
| 10   | <i>Super Mario Bros. Deluxe</i>            | 38,100,000  | Multi-platform | July 12, 2003                    | Nintendo EAD                | Nintendo                    | [6]  |
| 11   | <i>Mario Kart 8 / Deluxe</i>               | 37,440,000  | Wii U / Switch | May 29, 2014                     | Nintendo EAD                | Nintendo                    | [6]  |
| 12   | <i>Mario Kart Wii</i>                      | 37,380,000  | Wii            | April 10, 2008                   | Nintendo EAD                | Nintendo                    | [6]  |
| 13   | <i>Call of Duty: Modern Warfare 2</i>      | 36,000,000  | Multi-platform | November 11, 2009                | Infinity Ward               | Activision                  | [27] |
| 14   | <i>Wii Sports Resort</i>                   | 33,140,000  | Wii            | June 25, 2009                    | Nintendo EAD                | Nintendo                    | [6]  |
| 15   | <i>New Super Mario Bros.</i>               | 30,800,000  | Nintendo DS    | May 15, 2006                     | Nintendo EAD                | Nintendo                    | [25] |
| 16   | <i>New Super Mario Bros. Wii</i>           | 30,320,000  | Wii            | November 11, 2009                | Nintendo EAD                | Nintendo                    | [6]  |
| 17   | <i>Terraria</i>                            | 30,300,000  | Multi-platform | May 16, 2011                     | Re-Logic                    | Re-Logic / 505 Games        | [26] |
| 18   | <i>Call of Duty: Modern Warfare</i>        | 30,000,000  | Multi-platform | October 25, 2019                 | Infinity Ward               | Activision                  | [27] |
| 19   | <i>The Elder Scrolls V: Skyrim</i>         | 30,000,000  | Multi-platform | November 11, 2011                | Bethesda Game Studios       | Bethesda Softworks          | [28] |
| 20   | <i>Diablo III</i>                          | 30,000,000  | Multi-platform | May 16, 2012                     | Blizzard Entertainment      | Blizzard Entertainment      | [29] |

The numbers don't lie.

# Prototype Goals

~~Are kart racing games fun?~~

Do the mechanics specific to *our* kart racing game work?

# Prototype Goals

More Specifically...

Does the water system lead to meaningful choices?

How well do our water tank mechanics go with a kart racing game?

Do the items and water tank system preserve competition between players?




# Game Idea Changes

**Before / During Prototyping**

- Constant water loss from driving
- Discarding items also creates a puddle
- Position-dependent item distribution
- Water loss for targets hit by an item

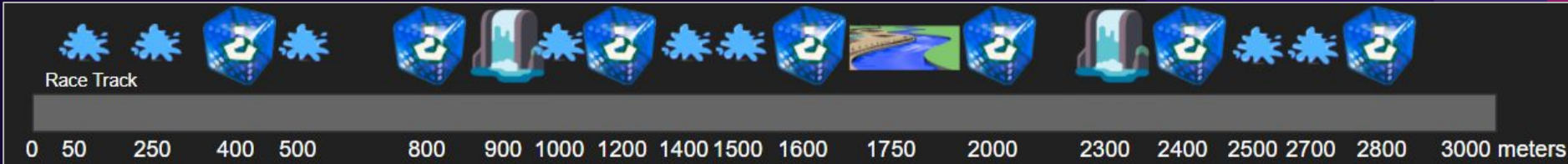
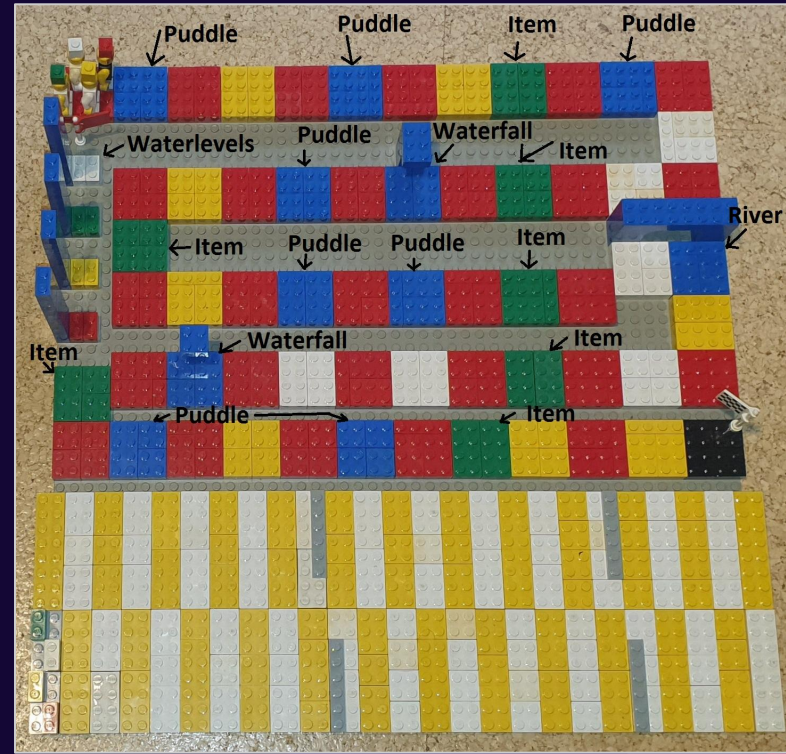
# Prototype Design

- Turn-based representation of a racing game
  - Board game like
  - Progression through a mix of luck and player choices
    - Vehicle speed & events mostly luck based
    - Water management & Items controlled by players & events
  - Rules for the order of actions
- Functional as both E-paper prototype and physical prototype
  - Google slides ↔ LEGO bricks
  - Online ↔ Local multiplayer 
  - Slides as save states ↔ Manually take photos of everything

# Prototype Design

## Race Track:

- Linear progression towards goal
- Events along path





# Prototype Design

Player stats:

Static

Base speed

Skill

Dynamic

Luck

Tank Fill



8

Min 0

Max 15

GENERATE

$$\text{Velocity} = (\text{Base Speed} + \text{Skill} + \text{Luck}) * (1 + \text{Tank Fill} * \text{Tank Speed Multiplier})$$

# Prototype Design

## Events:

- Item box
- Waterfall
- Puddle
- River

## Event Descriptions

**Item Box**  
Icon:



**Effect:** Player receives a random item  
**Effect Chance:** 100%

**Waterfall**  
Icon:



**Effect:** Player Receives 20% water  
**Effect Chance:** 100%

**Puddle**  
Icon:



**Effect:** Player Receives 40% water  
Luck speed decrease  
**Effect Chance:** 50%

**River**  
Icon:



**Effect:** Player Receives 60% water  
Luck speed decrease x2  
**Effect Chance:** 100%

# Prototype Design

## Item properties

- Area of Effect
- Range
- Progress Modifier
- Water Cost
- Water gain on Discard
- Puddle on use
- Puddle on discard
- Pickup Condition

Icon:

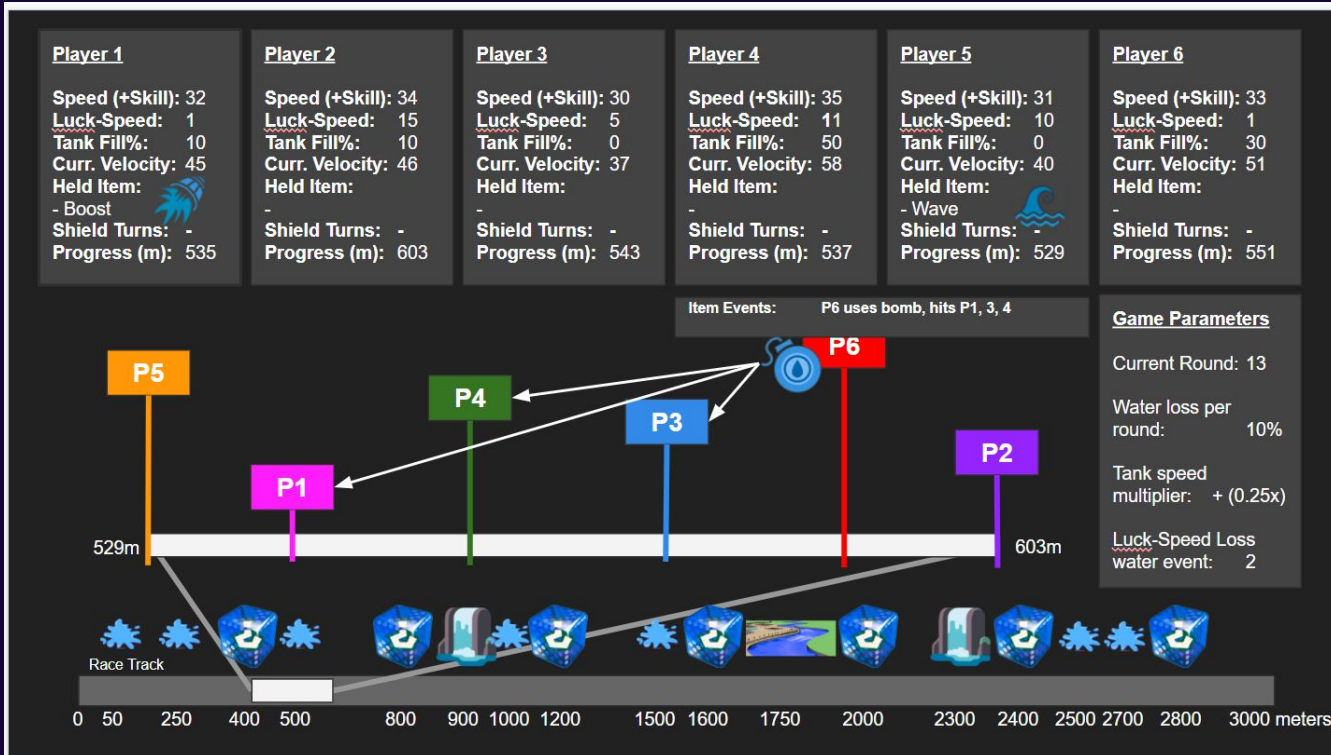


|                           |   |
|---------------------------|---|
| <b>Item Name:</b>         | Freeze Mine/Freeze spray  |
| <b>Area of Effect:</b>    | single opponent   |
| <b>Range:</b>             | -infinity to +20m   |
| <b>Progress Modifier:</b> | -20m<br>(if used backwards: 50% chance to miss target until a target is hit or all have passed) |
| <b>Water Cost:</b>        | 20%   |
| <b>Water on Discard:</b>  | 30%   |
| <b>Puddle on use:</b>     | -   |
| <b>Puddle on discard:</b> | p.ch.: 40%, w. gain: 30%  |
| <b>Pickup Condition:</b>  | third place or better   |

## Item availability:

|          |                                   |
|----------|-----------------------------------|
| 1st:     | bomb, shield, freeze              |
| 2nd:     | bomb, shield, boost, freeze       |
| 3rd:     | Wave, bomb, shield, boost, freeze |
| 4th/5th: | Wave, bomb, shield, boost         |
| 6th:     | Wave, shield, boost               |

# E-Paper Prototype Screenshot



# Physical Prototype Photos





# Rules

## On Round Switch:

1. Recalculate current velocity:  $(\text{Base Speed} + \text{Skill} + \text{Luck}) * (1 + 0.25 * \text{Tank fill})$
2.  $\text{Progress} = \text{progress} + \text{current velocity}$
3. Decrease shield counter (if available)
4. Allow players to use / discard items  
----
5. Generate luck speed (random number between 0 and 15)
6. reduce tank fill by 10%
7. Account for water on the track
  - a. Puddle: 50% chance, +40% water, luck -2,
  - b. Waterfall: 100% chance, +20% water,
  - c. River: 100% chance, +60% water, luck -4
8. Account for items on the track
  - a. 1st: bomb/shield/freeze
  - b. 2nd: bomb/shield/boost/freeze
  - c. 3rd: wave/bomb/shield/boost/freeze
  - d. 4th/5th: wave/bomb/shield/boost
  - e. 6th: wave/shield/boost
9. Update graphics

Demonstration

**TA-DAAA!**

# Prototype Results & Experience

- Less player choice as a result of simplification to turn-based board game  
⇒ Prototype too luck-driven
- Fair amount of dynamism given through water tank system and items
- Good players may feel like they are given too many disadvantages
  
- Helped us think through our water tank system more thoroughly  
⇒ adjustments made during and after prototyping phase
- Prototype highlighted the many balancing parameters available to us



# Game Idea Changes

## Before / During Prototyping

- Constant water loss from driving
- Discarding items also creates a puddle
- Position-dependent item distribution
- Water loss for targets hit by an item

## After Playing Prototype

- Skill checks that can benefit players further forward
  - Water preservation during drifts
  - Active Item Discard
- “Blue Shell”-equivalent (Snowstorm)
- Item list rebalancing
- Other balance considerations

**Thank you!**