

Icewave - Prototype

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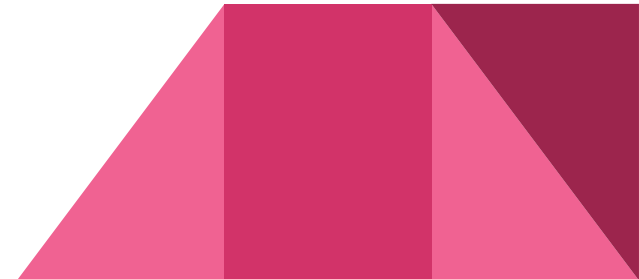
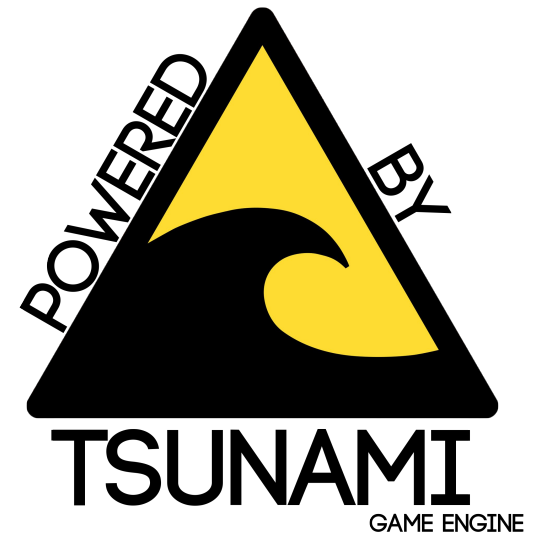
SURFING SIMULATION

**PHYSICALLY BASED WATER
TURBULENT LIQUID RENDERING**

**BIG
IDEA
BULLSEYE**

Tsunami Game Engine

- Combining Simulation, Graphics and Input
- Custom game engine written in modern C++11
- Rendering and Physics using DirectX11 and CUDA
- Multithreading support
- Composition oriented scene management



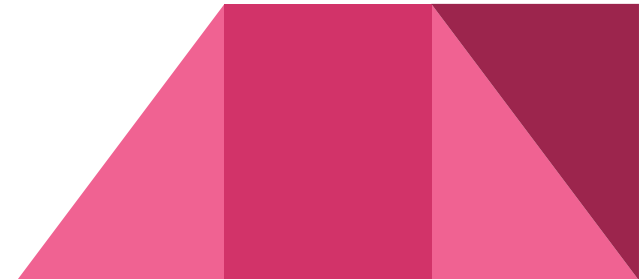
Icewave Gameplay

- Surfer needs to move on the wave to generate points
 - The faster and the wider the area traveled, the higher the score
 - Tricks etc. subject for high target or extras
- On 2-Player-Mode:
 - Hit the other player with a bigger force to push him into the river
- Player needs to position his center of mass respective to the water forces on the board to move along the wave (or fall into the river)



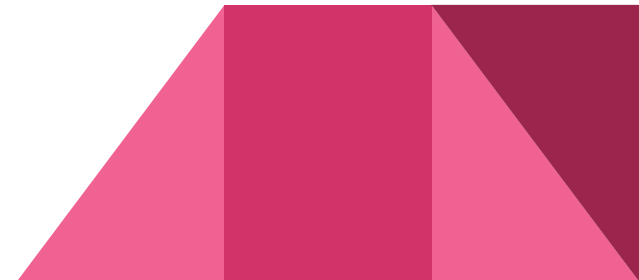
Prototype Elements

- Two figures - the players
- Surfboard representation - 3x3 cell with numbers
- Token - highlight the player's choice on the board
- Game area - the wave, 4x6 wide region
- 9 cards - water forces on the board, numbered
- A dice - used for choosing a small set of cards at random
- Goal: Push the enemy player into the Icewave!



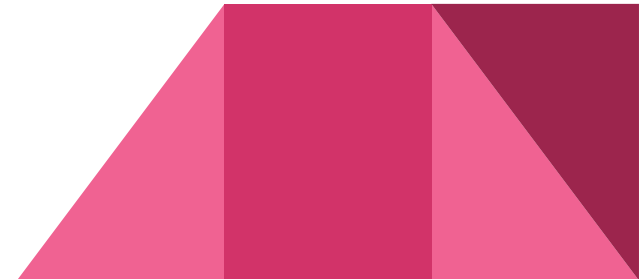
Prototype Rules

- Players start in 3rd row on respective sides
- System chooses 3 cards randomly from the set of 9 and shows the 1st player
- 1st player chooses his center of mass on the surfboard with the token
- System draws randomly 1 card of the previous 3 with the dice "*pips % 3*", resulting in water force on the position of the surfboard
- Moving direction on the area = vector of "center of mass" - "water force"
- If 1st player in region boundary, 2nd player's turn follows the same way
- If 2nd player in region boundary after his turn:
 - Both players pushed backwards by 1 row
- Next turn starts, until one player has lost.





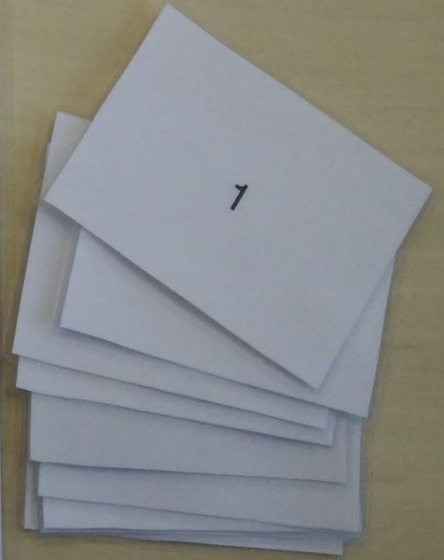
Reason for this prototype idea

- The Surfer cannot accurately know the forces of the water in each timestep
- The Surfer can only predict
- But he has a kind of understanding how the board behaves on the water
 - 3 system cards, what the surfer thinks the water forces might be
 - Surfer chooses his positioning of the center of mass on the board
 - Reality might differ from his prediction
 - Moving of the surfboard might be different than anticipated
 - That's why surfers fall

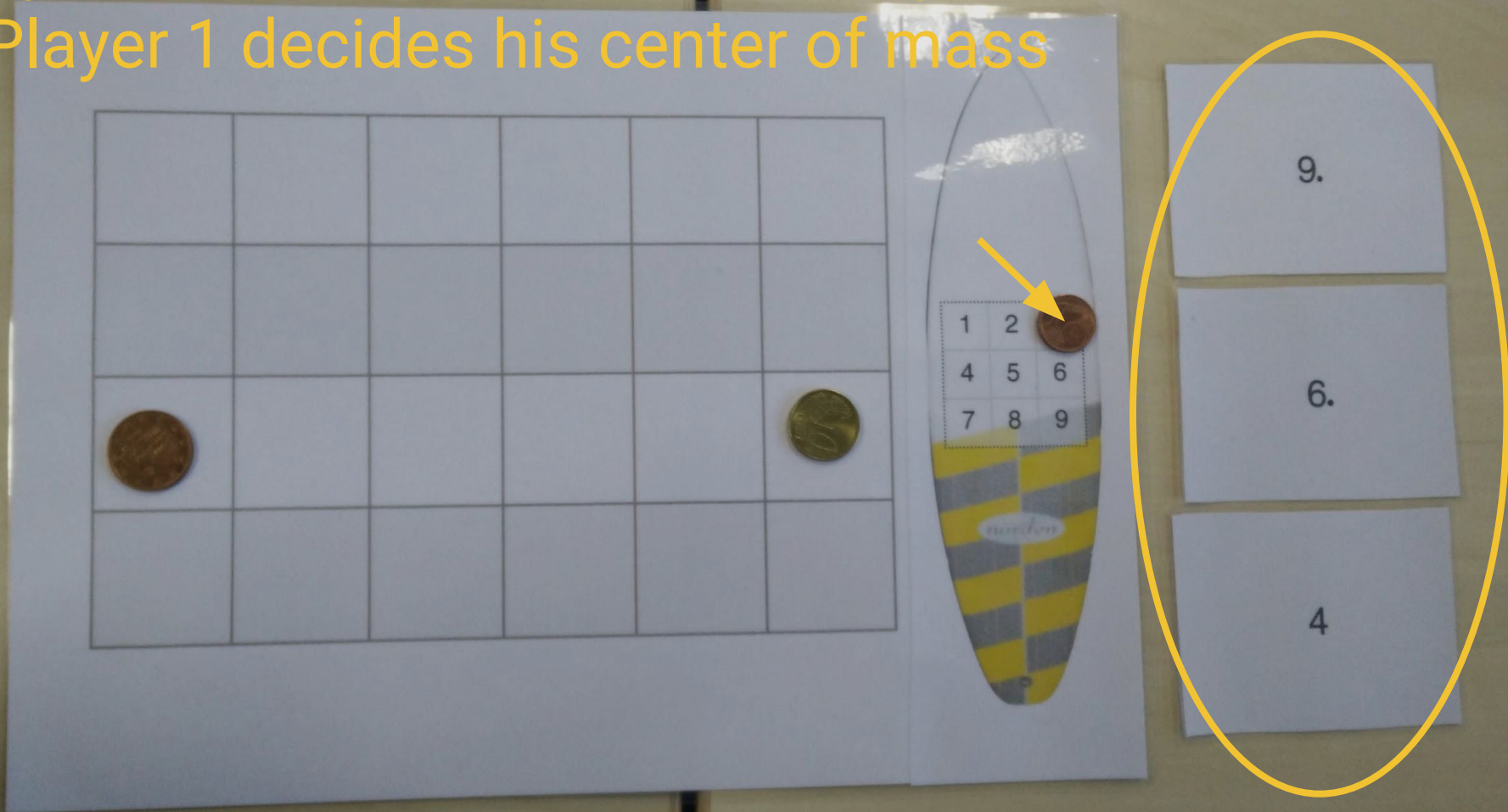


The Prototype Setup

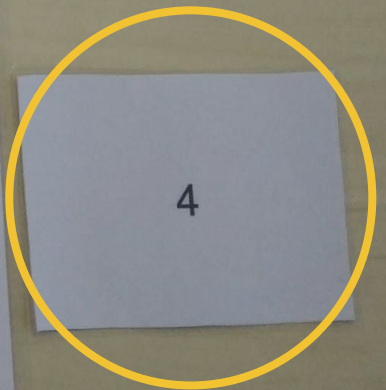


System draws 3 cards randomly from a set of 9
Player 1 decides his center of mass

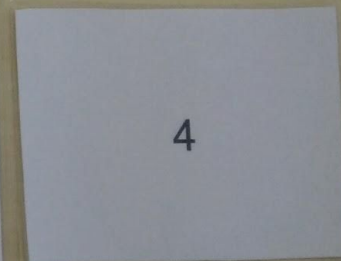
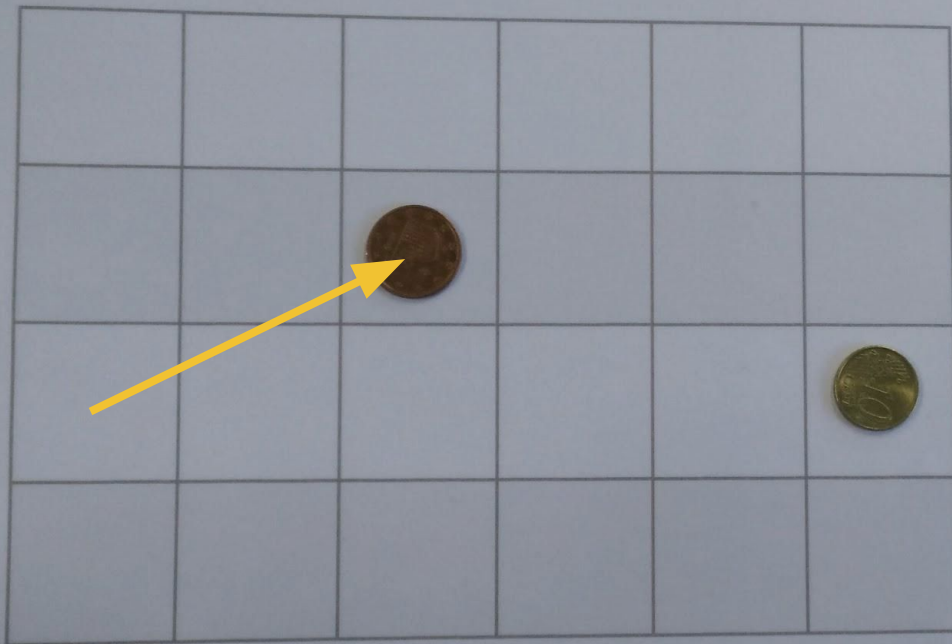


System draws the water force

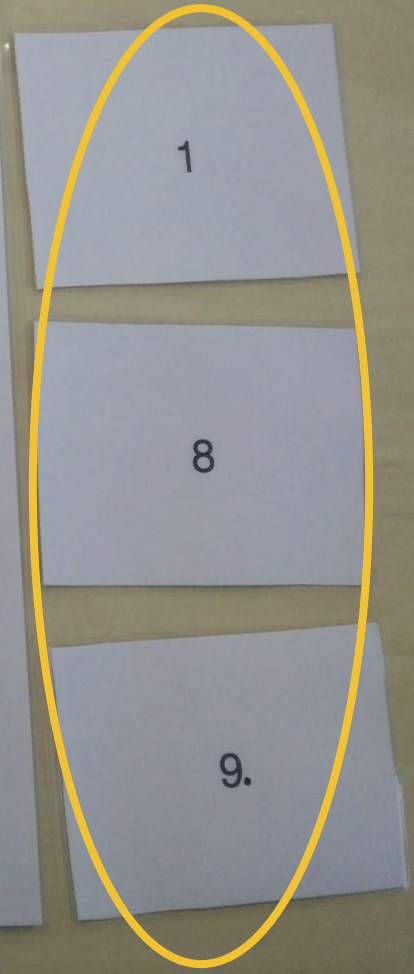
1					2



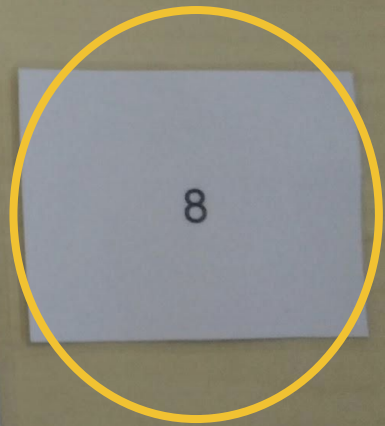
Move Player 1 according to direction 4 to 3



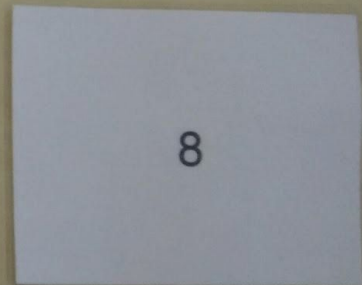
Player 2's round begins, system draws 3 cards
Player 2 chooses his center of mass



System draws water force

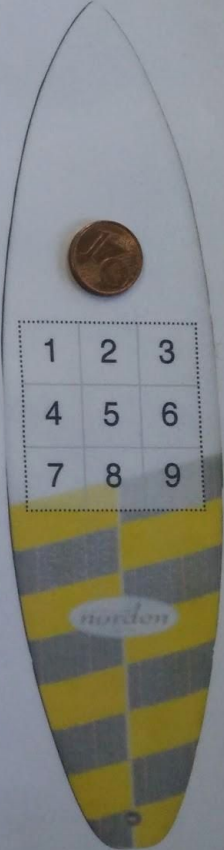


Player 2 moves from 8 to 1

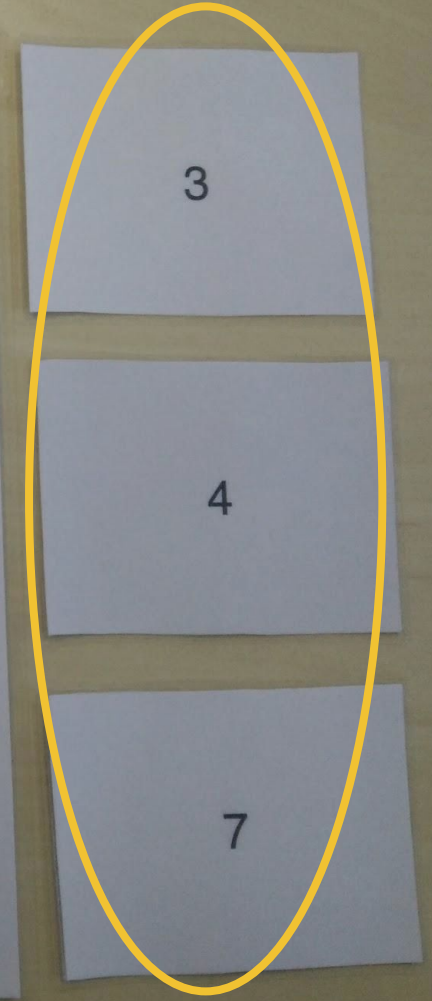


River mechanic after players round 1 row backwards

				1	
		1			

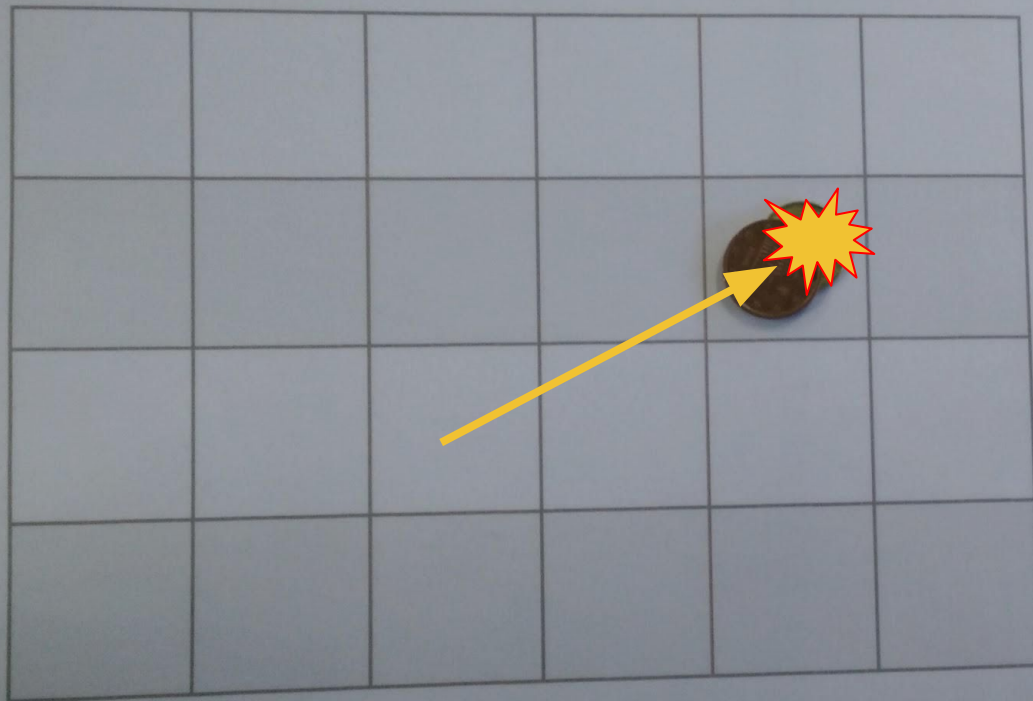


Player 1's round starts again
System and Player 1 chooses

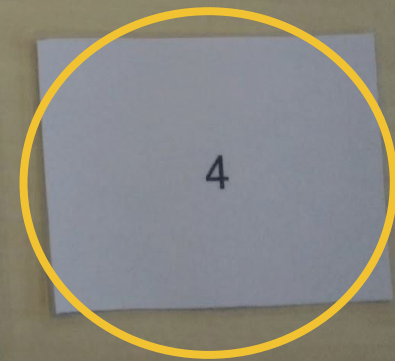


System chooses water force

Player 1 moves and pushes Player 2 into the river



1	2	
4	5	6
7	8	9



Thank you!

Questions?

